EPTEMBER 15, 1997 VOLUME 19, ISSUE 37 *Founded in 1978*

INFOWORLD

The Voice of Enterprise Computing

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Database roll-out

Sybase Adaptive Server Enterprise 11.5, beta

Now
- Parallel query support
- Clustering and partitioning

Later
- Row- level locking
- Server-side Java support

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Database race: *Sybase's latest RDBMS challenges its competitors' offerings.* 117

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XML initiatives take shape

■ Microsoft, Netscape, Oracle set language plans in motion

By Lynda Radosevich

THE EXTENSIBLE Markup Language (XML) is rapidly gathering steam as major vendors, including Microsoft, Netscape, and Oracle, prepare to launch strategic XML-related initiatives.

Although it is still being defined, XML is generating excitement because it lets developers create custom tag sets for building cross-platform applications across the Web that are data-neutral yet more structured than what is possible today using straight HTML.

Among the developments, Microsoft will kick off an XML awareness campaign with CEO Bill Gate's keynote speech at the Seybold San Francisco '97 conference, Sept. 29 to Oct. 3, a company source said.

Microsoft is also expected to announce in that time frame support for XML in Web-oriented tools, such as FrontPage and Visual Interdev.

Building momentum for the campaign, Microsoft, ArborText, and Inso last week submitted an XML

▹ **XML** *page 24*

PRODUCT REVIEWS

Exchange fills some gaps

By Patrick Marshall

WHEN MICROSOFT Exchange Server 5.5 (code-named Osmium) ships toward the end of this year, most users probably won't even know the difference. But system administrators, especially those at larger enterprises, definitely will. Most of the major improvements in this incremental release are under the hood, but they fill in important gaps that have plagued enterprise users.

The beta release I tested seemed nearly ready for prime time. However, a few missing features and some extraordinary memory hogging still need to be ironed out.

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Filling in the gaps

Microsoft Exchange Server 5.5, beta

- No more 16GB limit on data storage
- Integrated fail-over support
- Support for IMAP4 and LDAP3 protocols

TEST INFOWORLD CENTER

Messaging matures

■ EMA close to ratifying new standard

By Dana Gardner

A NEW BREED OF Internet-commerce applications that replaces private batch processing could be born from a messaging specification that will this week face a vote of acceptance by the Electronic Messaging Association (EMA).

The Business Quality Messaging (BQM) draft specification will be voted on at EMA's Solutions Summit, in San Jose, Calif. It describes a middleware layer that resides on messaging servers to ensure that vital information, such as financial information, gets to where it's supposed to go, only once, quickly, and in the order it was sent.

Microsoft and IBM have already developed products using BQM. Microsoft will use it in Microsoft Message Queue Server (MSMQ), code-named FalconMQ, which will be bundled with NT Server and run only on that platform. IBM's MQWare will include a Software Development Kit supporting several platforms. The two vendors, along with Intel, launched the BQM initiative in April.

BQM is broad enough to accommodate multiple messaging systems, said Peter Houston, product manager at Microsoft for MSMQ, in Redmond, Wash.

▹ **MESSAGING** *page 24*

Order-fulfillment

UPS to deliver I-commerce infrastructure

By Matthew Nelson

AS PART OF a long-term strategy to become the dominant order-fulfillment service associated with emerging Internet-commerce applications, United Parcel Service (UPS) is developing a series of APIs to better connect its logistics systems to applications from enterprise resource planning (ERP) and I-commerce vendors.

UPS has been working with IBM, Pandesic, SAP, Icat, Harbinger, Lotus, Microage, and others to create APIs to streamline the process of connecting the shipping giant to the companies' commerce systems, according to Mark Rhoney, vice president of corporate marketing at UPS.

The effort may lead to the creation of a standard API to connect UPS and I-commerce companies in the future.

"The possibility exists that if we get together with all these software companies then we'll see a de facto standard," Rhoney said.

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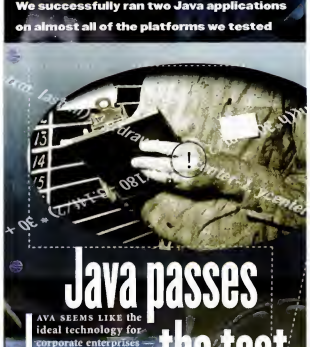
TEST CENTER ANALYSIS

We successfully ran two Java applications on almost all of the platforms we tested



Java passes the test

JAVA SEEMS LIKE the ideal technology for corporate enterprises: write or purchase an application once and it will run on any computer. Finally, here is a solution to the never-ending, platform-specific support headaches. Sound too good to be true? Our Test Center Analysis shows that Java lives up to its claims of platform independence in most

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REPRODUCTION

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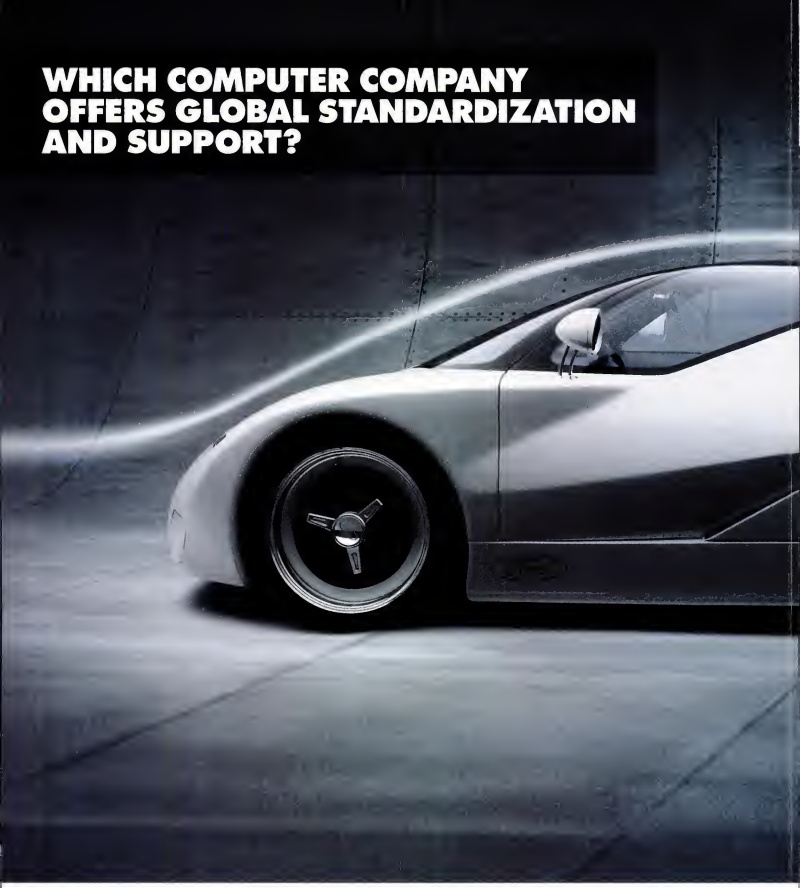

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CORBA initiative

OMG to address modeling, DCOM bridge

By Ted Smalley Bowen

THE OBJECT Management Group (OMG) next week in Dublin, Ireland, will advance its CORBA initiative with the expected adoption of a key object-modeling language, and the group will assess the latest proposal for the strategically important — yet politically sensitive — bridging specification between CORBA and Microsoft's Distributed Component Object Model (DCOM).

At the OMG Technology Committee Meeting, the OMG's 24-member board of directors will vote on ratification of the Unified Modeling Language as a standard modeling language for components. Rational Software, which took the lead on the initiative, last week submitted the latest UML proposal to the OMG Object Analysis and Design task force.

The OMG will also address its recently launched Component Initiative, which intends to yield a component model and standard scripting language for working with CORBA components as part of CORBA 3.0, due in early 1998.

The JavaBeans component model is expected to be the basis of the CORBA component model, and scripting languages ranging from JavaScript, VBScript, and Perl to Tool Command Language and ObjectRexx are expected to be proposed, said Richard Soley, OMG's chief technical officer and acting chairman and CEO.

Also up for vote by the Technical Committee is the much-anticipated Component Object Model (COM)/CORBA Interworking Part B specification, which allows the existing COM-to-CORBA bridge specification to better handle DCOM.

"Part B extends Part A to get better performance, when you have a [CORBA component communicating with a] COM component across DCOM, as an option to IIOP [Internet Inter-ORB Protocol]," Soley said.

The proposal eliminates the restriction of handling DCOM/IIOP translation only on the COM client.

The proposal reflects changes to Hewlett-Packard's original, which stemmed from input by object request broker and platform vendors, including BEA Systems, Expersoft, Iona Technologies, Visigenic Software, and Visual Edge Software.

The latest proposal steers clear of endorsing DCOM, members said.

A draft proposal for adding asynchronous messaging capabilities to the CORBA services was also to be on the docket for the Dublin meeting. That proposal will instead be presented at the OMG meeting in December, Soley said. The COM/CORBA extension and messaging are slated for CORBA 2.2

"Messaging is probably my biggest concern," said Stephen Uczekaj, senior principal engineer at Boeing, in Seattle. "CORBA needs a data-flow-type architecture, which is critical for the development of embedded applications."

The group will also take up the issue of its leadership, after the departure this summer of President Chris Stone. Soley and Acting President and Chief Operating Officer Bill Hoffman are expected to retain their respective posts on a permanent basis, pending board review.

The Object Management Group, in Framingham, Mass., can be reached at (508) 820-4300.

FROM THE NEWS DESK · MICHAEL VIZARD

I-commerce may be a tough sell after all

Internet commerce is one of those ideas that looks great on paper, but when it comes time to actually implement it, the thorny business issues associated with this new medium can be life threatening to many large corporations.

Folks that preach the benefits of I-commerce like to toss around the term "disintermediation," a $10 word that means putting resellers and distributors out of a job. The concept here, as explained in Matthew Nelson's Page One article this week, is that the Web has the potential to fundamentally change the way we do business by allowing manufacturers to deal directly with their customers at a much lower cost of doing business.

In theory, this model holds true.

The problem is that any time a large corporation looks to sell its products directly over the Web, its existing resellers are given a good reason to jump ship and head for the competition. And because the majority of the public still doesn't buy over the Web, a company can quickly lose a lot of market share by angering its resellers.

That's why most of the I-commerce success stories on the Web involve start-up companies or small businesses.

But even these success stories have a darker side. Companies such as online bookseller Amazon.com may be gaining a lot of attention, but Amazon isn't making money yet. At the same time, Amazon's upstart online business is costing Barnes & Noble money in its efforts to compete. In effect, Amazon is killing the bookselling business in order to just get the business, while Barnes & Noble probably would have been better off pretending that Amazon.com didn't exist for another two or three years.

If you're planning to use the Amazon-vs.-Barnes-&-Noble battle to pitch the benefits of I-commerce to upper management at a large corporation, you're going to be in for a rough ride.

So is I-commerce really something mainstream corporate America can afford to embrace today, or are investments in this space going to be limited to business-to-business transactions over extranets that just automate existing sales channels? Write to me at michael_vizard@infoworld.com.

ACTRA TO ROLL OUT COMMERCE UPGRADE

Actra, the Internet-commerce joint venture of Netscape and GE Information, will unveil a revamped version of its PublishingXpert Web server on Sept. 26, said sources close to the Sunnyvale, Calif., company. Used by large commercial publishers such as *The New York Times* and *PCWorld* to serve up and manage Web content, PublishingXpert leverages CORBA to use objects across the Actra family of application servers.

ORACLE TO DETAIL DATA MART

Oracle at its Oracle OpenWorld conference in Los Angeles next week is expected to offer details about the upcoming Unix version of its Oracle Data Mart Suite used for developing data marts. The suite is due to ship in January 1998. The company also plans shortly to release the customized sales and marketing version of the suite for Windows NT and officials are pondering release of a data-mart package tailored to financial analysis.

COREL WORDPERFECT BUG TO GET FIXED

A bug that can result in data loss when Mijenix's ZipMagic is used with Corel WordPerfect Suite 8.0 has been confirmed by both companies. If a user has the WordPerfect word processor's version-control feature enabled and uses the right mouse button to click on a ZipMagic archive folder to display its context menu, all files in the folder are erased. The bug has been fixed both In the WordPerfect Suite, Professional Edition, and the Corel Central update to WordPerfect Suite 8.0. The update costs $9.95 and is available to users by calling (800) 772-6735.

HP'S BUILD-TO-ORDER PROCESS REVEALED

Hewlett-Packard last week officially unveiled its distribution model, which incorporates the build-to-order manufacturing process. HP will begin manufacturing PCs based on channel orders rather than forecasts. Resellers will assemble, customize, and distribute HP PC models and, under an Economy Program, customers will be able to select machines from a reduced number of models.

DOMINO 4.6 TO SHIP BY MONTH'S END

Lotus Domino 4.6, with Lightweight Directory Access Protocol and JavaBeans support, as well as more development features and broader internationalization, is due to ship by the end of this month at a cost of $495 per seat. That's a jump from the $295 pricing set by IBM when it bought Lotus more than two years ago. Lotus is also completing a 100% Pure Java e-mail client similar to ccMail that will be bundled with SmartSuite by year's end. The e-mail ciient will allow use of Lotus e-mail from any browser.

BRIEFLY NOTED: ▶ JavaSoft's introduction of a next-generation development environment, JDK 2.x, has been delayed from the end of this year to the second quarter of 1998. Officials said the delay is the result of the company's plans to release the JDK 2.x on all platforms at the same time. Neither alpha nor beta versions of 2.x are likely to be available before 1998. ▶ Cisco next week will introduce the new generation of its high-end remote-access switch, the AS5300, code-named Genero.

▶ For the latest IS news and updates, turn to *InfoWorld Electric* at http://www.infoworld.com.

IDG INTERNATIONAL DATA GROUP

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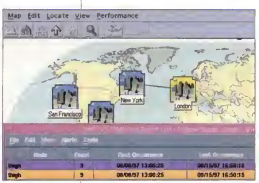

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THE INFOWORLD SCOOP

- For a brief summary of the latest news, reviews, interviews, features, and forums, subscribe to our weekly newsletter, *The InfoWorld Scoop*, at http://www.infoworld.com/launch/register.html.

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Microsoft's Office plan panned

By Bob Trott

SOME ENTERPRISE customers are complaining that Microsoft is making them reinstall Office 97 because of a snafu concerning Service Pack 1, which was released last month to correct a file-compatibility problem with Word.

"Microsoft says it's the best way to get good results, but it's a headache," said one large-shop IS manager.

Microsoft posted the service pack on Aug. 6, only to remove it nine days later because of a bug in the cache and memory-allocation system.

Users who did not download it during the brief period that it was available were later able to retrieve an update from the company's Web site with little problem.

However, those who downloaded the faulty pack had to wait several more days for a proper fix. Several corporate customers have complained that Microsoft's support staff is recommending a complete reinstall of the large applications suite and the second patch.

"That causes a lot of pain, and it can screw up any customization," said John Navas, a Dublin, Calif., consultant. "It's one reason IS managers learned the hard way not to rush out and install Microsoft updates."

To its Select program customers, Microsoft suggests installing the Enterprise update version of Office 97 because it also adds support for Exchange 5.0, support for MMX chips, and other new features. The Enterprise version on CD-ROM was mailed out last week.

"That's the only circumstance where we recommend to reinstall the product," said Andrew Dixon, Microsoft product manager.

Microsoft Corp., in Redmond, Wash., can be reached at http://www.microsoft.com/.

MICROSOFT MAKES NEW ALLIES

Microsoft went on a European shopping spree last week, investing $45 million in voice-recognition technologies in Belgium and acquiring a minority stake in a German company that specializes in foreign-language "localized" software.

In Belgium, Microsoft invested $45 million in Lernout & Hauspie; the two companies plan to develop voice-enabled computing technologies for the Windows operating system as well as for applications, according to Dan Rosen, general manager of new technology at Microsoft.

In addition, Microsoft also made a 20-percent investment in the software company Trados GmbH, based in Stuttgart, Germany.

Microsoft plans to use Trados software as its internal-localization memory store, allowing the company to more effectively reuse already localized text from product to product.

Macromedia readies push into Web-authoring space

By Jeff Walsh

MACROMEDIA will announce a Web-page-authoring tool, code-named Dreamweaver, at its user conference in October.

The product will compete directly with high-end Web-authoring tools such as NetObjects Fusion and Microsoft FrontPage, according to Macromedia founder Marc Canter. Dreamweaver also differs from Macromedia's own Backstage 2.0 Web-authoring tool, he said.

"[Dreamweaver] doesn't have the database compatibility Backstage had, but it has WYSIWYG layout," Canter said.

Macromedia's Director and Flash products already bring rich multimedia content to the Web through the company's Shockwave format.

Canter noted that neither Director nor Flash outputs HTML. When asked whether Dreamweaver would provide hooks to make integrating Shockwave into Web sites easier, Canter said, "It would be safe to assume that."

The company recently launched a Web site, the Dynamic HTML Zone, which is focused on cross-browser Dynamic HTML authoring. Microsoft and Netscape are currently pushing for different Dynamic HTML standards.

The site notes that Shockwave is only one of four Dynamic HTML objects that works across both Web browsers. Dreamweaver would enable Web professionals to author a Dynamic HTML page once and deliver it to both browsers, one source said.

Macromedia would not provide more details about Dreamweaver, Canter left the company in 1991.

Macromedia Inc., in San Francisco, is at (415) 252-2000.

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SunSoft will revamp Java Development Environment

By Ted Smalley Bowen

SUN MICROSYSTEMS' SunSoft division last week posted an upgrade of its Java WorkShop Java development environment (JDE) that sports a revamped developer interface, automated JavaBeans support, improved debugging, and an application profiler.

The $99 Java WorkShop 2.0 includes a JavaBeans wizard for automatically generating JavaBeans components, their associated Bean information files, and Customizer class files and storing them as Java Archive files, according to Andy Nguyen, product manager.

"You can then go to the Java WorkShop JDE and create the logic and all the necessary infrastructure," Nguyen explained.

The upgrade includes a revised graphical user interface. Whereas Version 1.0 sports a Web browser user interface, Version 2.0 employs an integrated editor with such staples as syntax highlighting, auto-indent, and popular key binding, Nguyen said.

The tools performance has been boosted with a new virtual machine and an improved Java compiler, according to company officials.

Version 2.0 also includes a Java profiler for tuning applications and now supports remote debugging, according to Nguyen.

ObjectDesign's PSE for Java is also included as a development repository.

Long-term plans call for incorporating Java WorkShop with SunSoft's other WorkShop development tools in a common, multilingual environment, and a variety of middleware hooks to legacy systems, according to Nguyen.

"Down the line, we are planning to have a common environment," Nguyen said. "We recognize a lot of developers come from a C++ background."

SunSoft, a division of Sun Microsystems Inc., in Mountain View, Calif., can be reached at http://www.sun.com/.

Power PC camp abandons Apple

■ MCG will no longer produce StarMax Macintosh clones

By Jeff Walsh and Andy Santoni

APPLE SEEMS determined to go it alone in the Macintosh market, and its partners — whether CPU suppliers or clone makers — see no choice but to comply.

Motorola's Semiconductor Products Sector (SPS), along with PowerPC partner IBM Microelectronics, is turning its attention to customers other than Apple. Motorola's Computer Group (MCG), meanwhile, last week discontinued its Mac clones.

"This was a tough decision for all of us, but given Apple's position, we had no choice," said Joe Guglielmi, corporate vice president and general manager at MCG, in Tempe, Ariz.

MCG will continue to sell its StarMax clones until the end of the year but cannot sell its Common Hardware Reference Platform (CHRP)-architecture StarMax Pro 6000.

Guglielmi said development of an unannounced CHRP-based Mac notebook was also discontinued.

Umax Technologies, which is now the only Mac OS licensee, focuses on low-end and international sales, which are not Apple's strengths.

Meanwhile, Motorola and IBM will meet this week to hammer out the future of the PowerPC CPU.

Although Apple is still a valued customer, new PowerPC designs will target applications such as telecommunications, networking, and handheld products, the companies said.

Each company has produced embedded PowerPC chips, and under the new agreement, they will develop compatible devices, an IBM representative said.

According to an Apple representative, Apple buys more than $300 million worth of semiconductors every year and will work closely with IBM and Motorola on future PowerPC chips.

However, Apple's change in market focus precipitated a deeper commitment from the other two Apple-IBM-Motorola alliance members to embedded applications, said Tom Beaver, corporate vice president of world marketing at SPS, in Phoenix.

Beaver said that he understands Steve Jobs' aim is to concentrate on desktop publishing and education markets.

This means pulling out of enterprise computing, where Apple has not been successful, according to Beaver.

Apple Computer Inc., in Cupertino, Calif., is at (800) 776-2333 or http://www.apple.com/. Motorola Inc., in Schaumburg, Ill., is at http://www.mot.com.

APPLE'S KEEPING NEWTON

Apple last week changed its mind about spinning off Newton as a separate division.

Apple is now looking at the Newton eMate 300 as a potential product it can sell to the education market, said Katie Cotton, an Apple spokeswoman.

By bringing the Newton division back into Apple, the company can strengthen the appeal of the eMate 300 and help it to reach a broader audience, Cotton said.

The announcement generated speculation within and outside Apple that Steve Jobs wants to discontinue Newton's MessagePad 2000 personal digital assistant product.

"We are not dumping the MessagePad," Jobs said.

However, sources within Apple said they doubted Jobs would continue development of the MessagePad product line.

— Jeff Walsh

Databases on display

■ IBM, Sybase to introduce upgrades

By Paul Krill

IBM AND SYBASE will headline this week's IT Forum conference in New York with major upgrades to their database products.

IBM is planning to announce single-user, workgroup, and enterprise-level offerings for DB2 Universal Database, Version 5.0, which merges support for disparate data types with parallel processing.

The database will be available in several variations, including a single-user Personal Edition, priced at $369 per user; a Workgroup Edition, priced at $999 per server, plus $199 per user; and an Extended Enterprise Edition, priced at $35,000, said sources familiar with IBM's announcement. The Workgroup and Enterprise Editions will implement symmetric multiprocessing.

DB2 Universal Database has what appears to be an extensible architecture, but IBM needs to bolster support for nesting of complex data types, object references, and Java, said Mitch Kramer, an analyst at the Patricia Seybold Group consultancy, in Boston.

Meanwhile, Sybase will unveil Adaptive Server 11.5, which will support new data types in a component-based architecture and will execute stored procedures in the Java programming language. The company will also demonstrate integration with the upcoming Adaptive Server IQ decision-support database, in which data will be easily migrated between relational and decision-support databases.

But lacking in this release of Adaptive Server will be support for massively parallel processing. This will be added in 1998 via a datastore module, Sybase officials said.

The company said pricing will be similar to existing database prices, which cost $13,995 for eight users.

Both the IBM and Sybase database offerings are due to ship this month.

Also at IT Forum, Business Objects will release BusinessObjects 4.1, an update to its query, reporting, and online analytical processing tool, featuring intelligent agents and new Web capabilities.

IBM, in Armonk, N.Y., is at (914) 765-1900. Sybase Inc., in Emeryville, Calif., is at (510) 922-3500. Business Objects Inc., in San Jose, Calif., is at (408) 953-6000.

PeopleSoft adds enterprise features to 7.5

By Rebecca Sykes and Stannie Holt

FOLLOWING ON THE HEELS of its 7.0 release last month, PeopleSoft has begun touting new features in PeopleSoft 7.5, the next release of its enterprise resource software.

There will be new features in all four of PeopleSoft's software lines: Human Resource Management Systems, Financials, Distribution, and Manufacturing, officials said.

These products, slated for release during the first half of next year, include European Payroll, designed to give users control over all aspects of payroll operation in multinational and multicurrency environments; Demand Planning, designed to integrate forecasting with supply planning by enabling collaboration across multiple departments and with supply-chain partners; Treasury, aimed at easing cash management and risk management; and Expenses, targeted at multinational organizations that want control over expense management and processing.

PeopleSoft also said last week that it will co-develop with KPMG Peat Marwick a Performance Management application to help organizations track internal performance indicators.

The product is slated for beta release in the second quarter of 1998, officials said.

Analyst Henry Morris, program director for data warehousing and applications at International Data Corp., in Framingham, Mass., said this sounds like a useful development because it directly links output information to the systems that collect data to measure performance.

"There's a good synergy," Morris said. "It makes more sense than coming in after the fact and trying to build links or whole separate systems."

PeopleSoft also announced features slated for PeopleSoft 7.5, tailored for manufacturing, retail, higher education, U.S. federal government, public sector, financial services, and other industries.

The company also said it would make DirectPath, its implementation toolset, available to all customers with the beta release of PeopleSoft 7.5. DirectPath offers deliverables and templates designed to cut the time it takes to get applications running, officials said.

PeopleSoft Inc., in Pleasanton, Calif., can be reached at (510) 225-2000 or http://www.peoplesoft.com/.

Rebecca Sykes is a Boston correspondent for the IDG News Service, an InfoWorld *affiliate.*

For the record

The Test Center Analysis of IP routing protocols (Sept. 8, page 74) incorrectly reported that Windows NT supports only Routing Information Protocol (RIP), Version 1. Microsoft's Routing and Remote Access Service upgrade adds support for RIP2 and Open Shortest Path First.

BETA REVIEW **MICROSOFT WINDOWS NT SERVER, ENTERPRISE EDITION 4.0**

NT Server boosts capacity, bundles key components

By Brooks Talley

I JUST LOOKED AT Release Candidate 2 of Microsoft's Windows NT Server, Enterprise Edition 4.0, and I found its latest developments to be little more than a conveniently packaged bundle of the current NT Server and some of the newest NT add-ons. Although there are a few key differences between the Enterprise Edition and Standard Edition servers, they will mostly affect users with machines that have more than four processors or have more than 3GB of RAM.

The intrinsic differences in Enterprise Edition boil down to three things: support for as many as eight processors, a change in the way memory is managed, and the presence of Cluster Server, which is not available separately. Previously and in the current Standard Edition, NT would allocate as many as 2GB for applications, while reserving 2GB for NT. But in the Enterprise Edition the kernel has been tuned to allocate as many as 3GB to applications and a maximum of only 1GB for the OS.

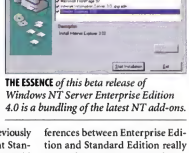
Other than that, the differences between Enterprise Edition and Standard Edition really come down to the second CD, called the Component CD. On it are Microsoft's Cluster Server, Transaction Server, and Message Queue Server, in addition to Internet Information Server 3.0 and FrontPage 97. (For the dates of our reviews of these products, see table.)

Service Pack 3 is included on the "base" CD, which is handy, but not nearly as handy as it would be if NT Enterprise Edition could simply be installed with the Service Pack already integrated. As it was, I had to install NT, and when it rebooted and I logged in, I was told to upgrade.

After I installed the Service Pack and again rebooted the server, I saw one of the few Enterprise Edition tweaks — an installer that lists the various components from the second CD. I chose the components I wanted to install, and it stepped through each setup process. After installation, the integrations are no different than those that you would get by purchasing or downloading each of those components separately and setting them up on a Standard Edition of Windows NT Server.

NT Enterprise Edition's main selling points should be any price break from bundling the various components into one package and the added enhanced multiprocessor and memory support. Beyond that and the inclusion of Cluster Server, the only real benefits are the convenience of having all of Microsoft's enterprise-oriented NT components on a single CD rather than on three separate CDs.

Reach Brooks Talley at the InfoWorld Test Center (brooks_talley@infoworld.com). He has worked with Windows NT since its release.



THE ESSENCE *of this beta release of Windows NT Server Enterprise Edition 4.0 is a bundling of the latest NT add-ons.*

Enterprise bundle

Windows NT Server adds key elements

Product	Review date
Cluster Server (Wolfpack)	Mar. 17, 1997
Internet Information Server	Nov. 25, 1996
Message Queue Server (Falcon)	May 5, 1997
Transaction Server (Viper)	Nov. 11, 1996
FrontPage 97	Oct. 7, 1996

All reviews can be found on InfoWorld Electric at http://www.infoworld.com/printlists/.

THE BOTTOM LINE

Microsoft Windows NT Server, Enterprise Edition 4.0, beta

The latest beta release of NT Server's Enterprise Edition basically bundles the server with its key add-ons. It also increases the amount of memory for applications.

Pros: Convenience of bundled applications; includes Cluster Server; greater memory, CPU support.

Cons: None significant.

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Gateway-labeled servers hit the market

By David Pendery

GATEWAY 2000 continued its march into the enterprise last week with the release of its first family of servers bearing its brand name.

Gateway's new line is poised to enter the lower end of enterprise markets. The $2,499 NS 7000 is a workgroup-size machine, powered by one or two Pentium Pro or Pentium II processors. The $3,799 NS 8000, with the same processors and scalability as the NS 7000, is aimed at larger groups or medium-size businesses. The NS line's workhorse is the $12,999 NS 9000, scalable to six Pentium Pro chips.

All of the products are available now.

Following on the heels of Gateway's release of its E-series of PCs in May, these servers could significantly impact Gateway's presence in enterprise markets.

"This has been a long time coming," said Richard Zwetchkenbaum, an independent analyst, in Marlborough, Mass.

"It was clear [that servers] were missing from their lineup," Zwetchkenbaum said.

The servers are somewhat unique in that they will be sold through Gateway's well-known direct, build-to-order sales model, as well as through selected VARs.

Gateway's enterprise plan also included the acquisition in July of server maker Advanced Logic Research.

ALR technology provided the necessary boost to Gateway's entry into servers, because the company did not have to design its models from scratch, Zwetchkenbaum said.

Also, ALR's technology and products could be "Gateway-ized," Zwetchkenbaum added, and thus mass-produced and sold directly.

ALR last week announced price cuts on its Revolution 6X6 servers. Four 200-MHz Pentium Pro-based servers now range in price from $7,995 to $11,995.

Gateway 2000 Inc., in North Sioux City, N.D., can be reached at (800) 846-2000.

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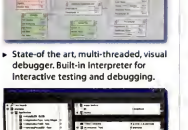

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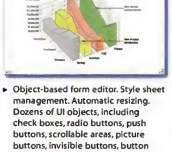

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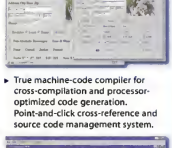

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Tivoli and Marimba team up to deliver, manage software

TIVOLI SYSTEMS and Marimba last week announced an alliance to improve the management and distribution of software to Internet-connected clients both inside and outside firewalls.

Under the agreement, Marimba's Castanet applications-distribution technology will be combined with Tivoli's TME 10 Software Distribution and TME 10 Inventory products.

Ira Machefsky, senior analyst at the Giga Information Group, in Santa Clara, Calif., said a partnership on a "traditional management platform is a first for Marimba" but speculated that similar alliances would follow. This view was backed by Marimba's president and CEO, Kim Polese, who commented that "we're going to continue to expand our presence in the management space."

Ron Rappaport, an analyst at Zona Research, in Santa Clara, said the deal with Tivoli makes perfect sense based on Tivoli's needs for software distribution and "Marimba's desires for a longer list of customers."

Pricing and availability of the integrated products has not yet been released.

Tivoli and Marimba will also extend the Application Management Specification, which defines a set of applications-management objects, to include components for Internet and intranet applications using the Open Software Description specification, which was submitted by Marimba and Microsoft to the Worldwide Web Consortium.

Tivoli Systems Inc., in Austin, Texas, is at http://www.tivoli.com. Marimba Inc., in Palo Alto, Calif., is at http://www.marimba.com.

— Emily Fitzloff

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† Notebook with Windows 3.1x or Windows 95, speaker, microphone and sound capabilities required. Spectrum Connected, Inc. is a trademark of Spectrum Information Technologies.

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IBM drops NetPC plans but will keep some features

By Ed Scannell

IBM OFFICIALS LAST WEEK formally admitted they have scrapped plans to deliver a NetPC-compatible device, although they will deliver a new series of low-end, full-blown PCs by October that have several features that comply with the NetPC specification.

Following Oracle's announcement of its intent to offer a stripped-down network computer, IBM and others espoused their own versions of a NetPC.

"There was this rush to [build a NetPC] and be part of this group that was created largely to go against the mind share" games of the NC effort, said Bruce Stephen, an analyst at Framingham, Mass.-based International Data Corp. (IDC). "Many vendors were doing it for marketing purposes and to be part of a united front against NCs."

However, after two months of internal debate, along with feedback from its corporate customers, IBM has decided to continue focusing on building a number of manageability features into all of its desktop systems rather than concentrate on creating a model that strictly adheres to the NetPC specification. (See "IBM joins vendors in voicing doubts over NetPC's future," Aug. 25, page 24.)

IBM showed off working prototypes of devices compliant with the NetPC specification at PC Expo in June, promising delivery of those systems this fall. Since then, corporate users have been telling IBM they do not have a broad-based need for such a device.

"Our users were telling us they don't want a unique device for better manageability," said Jim McGann, worldwide director of marketing for the IBM PC brand, in Raleigh, N.C. "They want better manageability in all systems from $800 devices to high-end workstations. They need a common management platform that fits into their enterprise architecture."

During this past year, IBM was already building a number of management features, such as Wake On LAN and LAN Client Control Manager, into desktop models. Those systems, such as the PC 300 GL and PL, are more appealing to most users than a NetPC, McGann said.

"Users told us we were right on with the manageability we had in the GL system we released in April, the XL in May, and the PL in August," McGann said. "They wanted us to continue focusing on these sorts of systems instead of something unique."

The upcoming low-end Pentium-based systems, variants of the company's Series 300 GL systems, are expected to be priced at about $1,000 and capable of running either Windows 95 or Windows NT 4.0. The back of the box will be sealed and will not include a floppy disk drive, McGann said.

Despite backing away from delivering a NetPC device, IBM still supports the initiative in spirit, McGann said, adding that it only serves to support IBM's 18-month long efforts to significantly lower corporate users' total cost of ownership.

"We are not delivering [a NetPC device] because of a lack of user interest, as some have reported," McGann said. "Our users have an extraordinary interest in manageability. We fully support the benefits of the NetPC initiative and will incorporate them across all our lines."

IBM may have tapped into an important trend illuminated by the whole NetPC exercise, according to industry analysts.

"The lesson of the NetPC is, maybe it's better to focus on broader capabilities like management tools," which can be deployed across a whole range of products, rather than a single form factor, IDC's Stephen said.

IBM, in Armonk, N.Y., is at (914) 765-1900.

IDG News Service correspondents Rebecca Sykes, in Boston, and Kristi Essick, in London, contributed to this article. The IDG News Service is an InfoWorld *affiliate.*

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HEAD-TO-HEAD REVIEW JAVA DEVELOPMENT TOOLS

Newest Java IDEs from Borland and Sybase are equally impressive

By Maggie Biggs

JUST AS THE JAVA language is beginning to mature, so are Java development tools. This month, Borland International and Sybase are releasing Java rapid application development tools: JBuilder 1.0, Professional Edition, and PowerJ 2.0, Enterprise Edition, respectively.

Choosing the right Java development tool is tricky. Both JBuilder and PowerJ are evenly matched when it comes to support for JavaBeans, Java Database Connectivity (JDBC), and Sun Microsystems' latest Java Development Kits (JDKs). I found that I preferred JBuilder by a hair, due to its tabbed development interface and seamless simultaneous update between visual and source-code windows.

But for those sites that today need enterprise features, such as SQL tools, CORBA support, and version control, PowerJ may be the better choice. Borland is expected to add these features when it releases its enterprise-level JBuilder sometime next quarter.

HEAD to HEAD
- JBuilder 1.0, Professional Edition
- PowerJ 2.0, Enterprise Edition

JBuilder 1.0

The JBuilder integrated development environment (IDE) is a joy to use. Its tabbed metaphor makes it wonderfully uncluttered. I could quickly navigate my project, open files, and access directories on my disk using the tabs. It was also a simple matter to switch between visual design and source code.

JBuilder handles updates between the source code and visual design panes in a highly transparent manner. Unlike PowerJ and other Java tools that show a noticeable hesitation before updating, JBuilder instantly processes updates no matter which window you make changes in.

Borland is also quite strong in its support of JavaBeans. Using the BeansExpress pane in the object gallery, I easily created new Beans and added them to the expandable component palette.

This edition of JBuilder comes with more than 100 JavaBeans that include source code. Borland has also included third-party JavaBeans.

When I wanted to include data in my projects, JBuilder made it easy to get to JDBC. It was simple to drag and drop data-aware components into the visual pane and then define the JDBC connection in the properties pane.

Although JBuilder does not allow on-the-fly source-code changes when running a program such as Asymetrix's SuperCede, it does enable execution of one version of the program while editing and running another copy.

PowerJ 2.0

The PowerJ IDE was more difficult to maneuver because it opened separate windows to accommodate different project views. It does the same thing when it switches between visual design and source code. This cluttered the screen, and I spent a lot of time opening and closing windows.

Unlike JBuilder, PowerJ was a bit hesitant when it updated keystrokes between the source-code and visual-design windows.

PowerJ is quite powerful when it comes to JavaBeans support. The product includes more than 200 JavaBeans with source code. But even though it was relatively easy for me to create JavaBeans with PowerJ, I still found JBuilder's BeansExpress easier to navigate.

Like JBuilder, PowerJ includes data-aware components and fast definition of JDBC connections.

PowerJ also offers the same flexibility as JBuilder through its support for Sun's JDKs as well as the Java Foundation Classes and Application Foundation Classes.

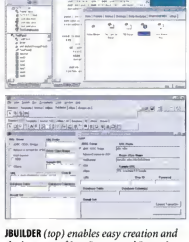
Sybase has beaten Borland to the punch with enterprise features. PowerJ's support for team development features, such as version control, give it an edge at larger sites with big projects.

Another plus for PowerJ is the inclusion of Jaguar CTS. The transaction middleware product made it easy for me to take JavaBeans and quickly create some powerful payment-processing applications.

After test-driving both Borland's JBuilder and Sybase's PowerJ, I found it difficult to choose between them. On one hand, PowerJ offers enterprise features that make it a natural choice for those building mission-critical Java applications. But otherwise, JBuilder is evenly matched with PowerJ.

I also found the JBuilder interface more intuitive. So for me, JBuilder gets the nod. But if you are building enterprise applications, PowerJ might be the way to go. I would recommend test-driving both IDEs. Right now, this is one close race.

Maggie Biggs (maggie_biggs@infoworld.com), a senior analyst at the InfoWorld Test Center, has been a developer for more than 12 years and has worked with Java since its inception.



JBUILDER *(top) enables easy creation and deployment of JavaBeans, and PowerJ (bottom) enables easy data access for application usage.*

How do they compare?

Feature	JBuilder 1.0 Professional	PowerJ 2.0 Enterprise
Can create Java applications, applets, and JavaBeans	Yes	Yes
Offers simultaneous update between visual design and source-code windows	Yes	Yes
Supports Sun's Java Development Kit 1.0.2 and 1.1	Yes	Yes
Supports JFCs[1] and AFCs[2]	Yes	Yes
Source code for JavaBeans included	Yes	Yes
Support for ActiveX components	No	Yes
Extensible component palette	Yes	Yes
Offers capability to encrypt source code	Yes	No
Supports incremental compilation	Yes	Yes
Offers native database access	Expected in JBuilder Client/Server Suite	Yes
Multitier RMI[3] and IIOP[4] support	Expected in JBuilder Client/Server Suite	Yes
Integrated version-control support	Expected in JBuilder Client/Server Suite	Yes

1. Java Foundation Classes. 2. Application Foundation Classes. 3. Remote Method Invocation 4. Internet Inter-ORB Protocol

THE BOTTOM LINE

Borland International's JBuilder 1.0, Professional Edition, is well-designed and well-integrated. But it currently lacks enterprise features such as version control, which is due next quarter. In contrast, Sybase's PowerJ 2.0, Enterprise Edition, is stronger on the enterprise side but lacks an uncluttered interface.

JBuilder 1.0, Professional Edition

PROS **Pros:** Seamless simultaneous update between design and source-code windows; allows encryption of source code; extensible component palette.
CONS **Cons:** Lacks native database access; no support for integrating C++ and Java.

Borland International Inc., *Scotts Valley, Calif.; (800) 233-2444; fax: (408) 431-4122; http://www.borland.com.*
Price: *$300*
Platforms: *Development: Windows 95, Windows NT; Production: any Java Virtual Machine-compliant platform.*

PowerJ 2.0, Enterprise Edition

PROS **Pros:** Enables integration of both C++ and Java; version control, JavaBean creation, and reuse; supports Java Database Connectivity.
CONS **Cons:** Source-code encryption not enabled; cluttered visual interface; bumpy update between visual and source-code windows.

Sybase Inc., *Emeryville, Calif.; (800) 879-2273, (510) 922-3500; fax: (510) 922-3210; http://www.powersoft.com.*
Price: *$1,999*
Platforms: *Development: Windows 95, Windows NT 4.0; Production: any Java Virtual Machine-compliant platform.*

Microsoft calls for streaming spec

■ ASF will allow synchronization of different media types

By Bob Trott

MICROSOFT IS leading the call on a new specification for streaming audio and video over the Internet.

Joining Microsoft in promoting the updated specification, the Advanced Streaming Format (ASF), are Intel, Abode Systems, Vivo Software, and Progressive Networks. Earlier this year, Microsoft made a minority investment in Progressive Networks, a Seattle-based media-streaming company.

The companies hope that ASF, an open file format for storing streaming multimedia content, becomes the standard streaming format in an area that has several, such as AVI, GIF, and WAV.

ASF will support multiple bandwidths within a single media file, allowing the synchronization of different media types, such as images, HTML pages, and scripted events, with an audio track. Content creators will be able to create one file that will play across servers and browsers, Microsoft officials said.

"We want to bring about [with ASF] the same sort of thing HTML did," said David Britton, Microsoft group manager. "We want to put standards in place. What HTML did for Web-based publishing, we think ASF does for multimedia publishing."

Microsoft's efforts to improve the multimedia capability of the Web continue at a breakneck pace. It purchased Progressive Networks' chief competitor, Sunnyvale, Calif.-based VXtreme, an Internet media streaming company, on Aug. 5 and on the same day, released its NetShow 2.0 streaming media server.

Microsoft Corp., in Redmond, Wash., can be reached at http://www.microsoft.com/.

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Netscape plans include slimline JavaBeans-based client

By Dana Gardner

NETSCAPE IS DEVELOPING one of the thinnest Web clients yet, a container for JavaBeans that will render images and content based on the types of data being accessed.

Described as an HTML-rendering Bean, the pared-down browser is part of Netscape's plan to offer Web clients that can be used on every flavor of hardware client — from new NCs to old PCs.

For example, the client will run on x486 models that have limited disk space and about 8MB of RAM. That is possible because the client downloads JavaBeans that contain only the code necessary for the specific type of information the user needs.

The Beans that will make such devices work will be stored in an open library on the newly inaugurated Netscape Netcenter on the company's home site, explained Marc Andreessen, senior vice president for technology at Netscape. (See "A Netcenter stage," Sept. 8, page 6.)

"We want 100-percent coverage on all devices. We can target all the successful devices. And 99 percent of the stuff you want is on the network," said Andreessen last week at a day-long gathering of press members and analysts. "Netcenter is the aggregation point for Beans that come down on the fly as needed."

The new client, due in a prerelease form by year's end, will be distinct from the so-called Javagator 100% Pure Java browser that Netscape and Sun are co-developing and which is expected by April 1998. (See "Sun, Netscape make Java browser plans," Sept. 1, page 8.)

Netscape is developing its server-centric, thin-client paradigm with a keen eye on competing with Microsoft, which is tying its Internet Explorer browser closely with its 32-bit Windows operating systems.

"We have to hurt [Microsoft] in their business model, which is the upgrade model," said John Paul, senior vice president and general manager at Netscape's server products division.

▶ Netscape's most popular server by volume is its entry-level FastTrack Server.

Netscape's concept, however, was met by muted enthusiasm by one enterprise administrator.

"We've upgraded most of our PCs already and don't have any need to salvage older PCs," said Win Cody, CIO of The Copeland Companies, a unit of The Travelers Group, in East Brunswick, N.J.

By offering Web clients for any number of heterogeneous corporate desktops, Netscape hopes to promote a four-tier enterprise architecture that relies, not surprisingly, on Netscape's server products and suites.

Netscape is building upgraded servers that use its Directory Server as a pivot for what it calls Crossware Applications, Paul said. Crossware is described as an application that runs across firewalls among several companies to allow for multisite Internet commerce.

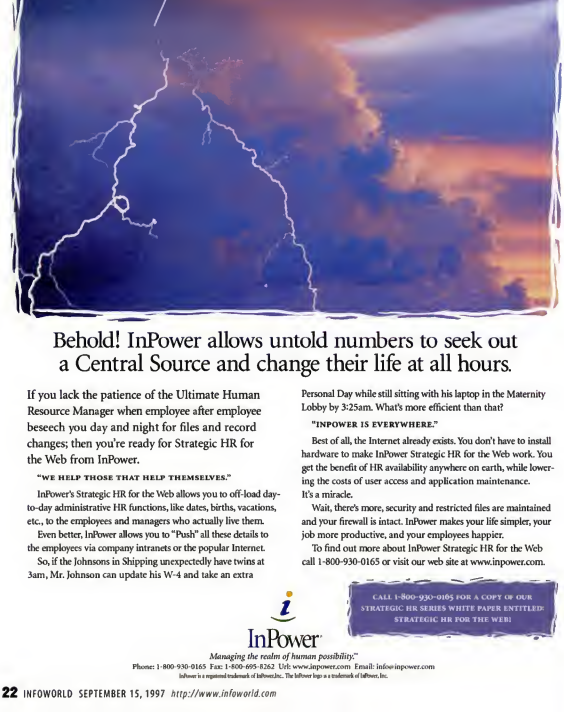
A Crossware Application Server, based on Enterprise Server 3.0, is being designed to allow such applications to be served securely among several companies that form an extranet, Paul said. The distributed process, he added, becomes very dependent on the directory server.

"You need the directory to authenticate the user throughout the process and across the various servers," Paul said, adding that the process works with third-party directory servers as well.

Netscape's rhetoric smacks of a self-serving model, according to Ezra Gottheil, an analyst at the Hurwitz Group, in Newton, Mass.

"Netscape wants to be your server vendor. Crossware is a good marketing term, rather than a real category of products," Gottheil said.

Netscape Communications Corp., in Mountain View, Calif., can be reached at (650) 254-1900 or at http://home.netscape.com.



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XML

Continued from page 1

style-sheet language, Extensible Style Language (ESL), to the World Wide Web Consortium (W3C). ESL extends Cascading Style Sheets with capabilities such as reordering XML data as it is displayed.

"XML is very strategic to our Internet plans," said Tom Johnston, product manager of platforms marketing at Microsoft.

Netscape, another XML proponent, this week plans to release a hypertree Java applet that lets users view content described using the Resource Definition Framework (RDF), said Ramanathan Guha, principle engineer at Netscape.

RDF is a W3C data model expressed in XML syntax. It is derived from Netscape's Meta Content Framework and provides the data underpinnings for browser applets, such as sophisticated site maps, push-channel definition, parental controls, and digital signatures, Guha said. Content vendors including AltaVista, ABCNews.com, Knight Ridder, Time, and Yahoo last week said they'll support RDF.

Netscape also is planning to release an XML parser soon, according to one source.

In a longer-term effort, Oracle, Sybase, Microsoft, and push vendor DataChannel are working to devise a database markup language using XML, said John Tigue, senior software architect at DataChannel. The language could radically simplify exposing databases to the Web.

Also, DataChannel is working on Xapi-J, a specification for representing data extracted by XML parsers to Java and JavaScript programs. Xapi-J supports a number of parsers, including Microsoft's XML Parser and the forthcoming offering from Netscape, Tigue said.

All this activity comprises the preliminary work that must be completed before users see workable XML-based products emerge, but it points to something that is likely to be as big or bigger than HTML, observers said.

"XML is amorphous. With the exception of DataChannel, nobody has placed anything on the table that is real. But this is very important for users," said J. P. Morgenthal, Java Computing Analyst at NC .Focus, a research company in Hewlett, N.Y. "With HTTP, you have this fantastic distribution mechanism. Now XML gives you the ability to provide structure over the data. That's cool."

Microsoft Corp., in Redmond, Wash., is at http://www.microsoft.com. Netscape Communications Corp., in Mountain View, Calif., is at http://home.netscape.com. DataChannel Corp., in Bellevue, Wash., is at http://www.datachannel.com.

XML refresher

For more XML news, check out these recent* InfoWorld *articles.*

- "XML à la Microsoft," Sept. 1, page 1.
- "Health-care uses XML for records," Aug. 25, page 51.
- "Component dreams," July 21, page 1.
- "Browsers to get face-lift," June 30, page 1.
- "W3C preps XML despite Netscape's snub," March 3, page 43.

*Extensible Markup Language

XML COMES INTO ITS OWN

High-level tools are emerging that underscore the possibilities for developing Web applications using the Extensible Markup Language (XML).

For example, AgentSoft this week plans to make available on its Web site a tool that automates the process of collecting data marked in the Channel Definition Format, which was written in XML. An investor who regularly gathers specific data from particular companies' sites could automate the process using the tool, said Bruce Krulwich, AgentSoft's director of advanced technologies.

The tool will be part of LiveAgent Pro 1.0, agent software that records actions as Web macros, expected to ship at the end of this month.

Meanwhile, Allaire this week plans to release a custom set of tags for its Cold Fusion development environment. The Custom Tag Gallery includes components for extending Web applications with functionality such as animated graphics or server-side credit-card processing.

Although Cold Fusion was developed prior to XML, it provides a good example of an XML-like custom tag language, analysts said.

AgentSoft Ltd., in Jerusalem, is at http://www.agentsoft.com. Allaire Corp., in Cambridge, Mass., is at http://www.allaire.com.

Messaging

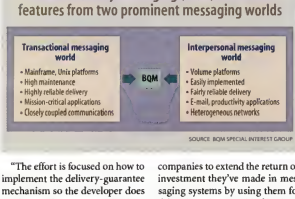
Continued from page 1

"Vendor A could build to MSMQ and to MQWare, and it would be easy to port from one to the other or use a product like Level 8's to connect the two," Houston said.

Level 8 Systems this week at the EMA event will unveil middleware that offers Windows NT to legacy links. Microsoft has formed an alliance with Level 8 to extend the MSMQ API to other operating systems and to provide interoperability with MQSeries and CICS.

"We see opportunities for other messaging vendors to support the specification," said John P. Smith, MQWare program manager with the MQSeries Group at IBM's Hursley, England, facility.

The vendors hope to encourage adoption of the BQM specification by making their platforms more appealing for applications developers.



"The effort is focused on how to implement the delivery-guarantee mechanism so the developer does not have to be a communications expert," said Mark B. Smith, business manager at Intel's Enterprise Server Group, in Hillsboro, Ore.

Vendors such as SAP, Baan, PeopleSoft, and Computer Associates could use the standard to easily deliver data, such as inventory information, between and among applications. It would also allow companies to extend the return on investment they've made in messaging systems by using them for delivering mission-critical business data in addition to e-mail.

"The real thing is that it is taken up by the ISVs. When do we see the spec in various applications?" said Bob Lewin, an analyst at Dataquest, in San Jose.

The Electronic Messaging Association, in Arlington, Va., is at (703) 524-5550 or http://www.ema.org/.

WorldCom, AOL slice up CompuServe shares

By Jackie Poole

THE ROUND OF agreements last week under which WorldCom and America Online will carve up CompuServe is designed to let each company concentrate on its core competencies.

Here are highlights of the deal.

- WorldCom bought H&R Block's 80-percent share in CompuServe for $1.2 billion in stock.
- WorldCom will retain CompuServe's networking-integration unit, CompuServe Network Services (CNS), and buy AOL's networking division, ANS Communications.
- AOL will buy CompuServe Interactive Services, the consumer online business, and receive $175 million in cash from WorldCom.
- A five-year contract names WorldCom as AOL's largest, single network-service provider.

Although the benefits for AOL are in the consumer space, CNS gives WorldCom an established presence in 105 countries and value-added services including intranets, remote access, transaction processing, and Internet commerce.

John Sidgmore, president and chief executive officer at WorldCom subsidiary UUNet, said CNS lays the groundwork for WorldCom to take its services global.

"[CNS] will give WorldCom leverage that they couldn't have gotten on their own," agreed Paul Zagaeski, a senior analyst at Giga Information Group, in Cambridge, Mass.

ANS doesn't have the same scope, but it has a solid reputation upon which the company has increased value-added services, Zagaeski said.

Alan Taffel, UUNet's vice president of marketing and product development, in Fairfax, Va., said WorldCom can now offer users one-stop shopping.

"Hybrid private/public networks work best when they [come from] a single supplier," Taffel said.

Analysts predicted further consolidation, where services overlap.

"I expect that ANS' managed remote-access service will be folded into CompuServe's offering," said John Girard, research director at Gartner Group, in Stamford, Conn.

WorldCom Inc., in Jackson, Miss., is at http://www.wcom.com.

UPS

Continued from page 1

Both IBM and Lotus have confirmed they are working with UPS on I-commerce solutions.

"We've been working with UPS on some projects," said John Patrick, vice president of Internet technology at IBM, in Armonk, N.Y. "They're taking net.commerce and linking it up with some other details."

"The APIs that we're building can go in three directions," Rhoney said. "One direction is that they could go into a merchant server-software package. The second direction is that it can head into the ERP solution. The last place it actually can go is, it can be downloaded and be put into our customer applications."

Analysts see UPS' move to create the APIs as a strong attempt to gather the lion's share of the logistics needs for the I-commerce market.

"Its sort of like getting inside the DNA of electronic commerce," said Bruce Richardson, vice president of research at Advanced Manufacturing Research, a consultancy in Boston. "They're really moving into the value-add of logistics companies."

The possibility of an I-commerce boom on the horizon is leading many companies to delve into software-application creation to keep their businesses connected to important I-commerce vendors, according to Chris Stevens, electronic-commerce analyst at the Aberdeen Group, in Boston.

"In order for some companies to get the channels that they need, they have to venture into the software business," Stevens said.

Regardless of how UPS' APIs are accepted and used, UPS has no plans to distribute any of the applications it creates for broader use, Rhoney said.

"We expect to do a lot with this — but not be a software company, but instead to be a channel to market," Rhoney said.

By providing APIs to I-commerce companies, UPS will also be solidifying its customer base while acquiring new customers from its competitors, according to Stevens.

"If you get UPS software already in [an I-commerce system], then you're probably going to use UPS," Stevens said.

United Parcel Service, in Atlanta, can be reached at (404) 828-6000 or http://www.ups.com.

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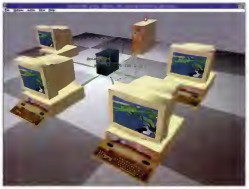

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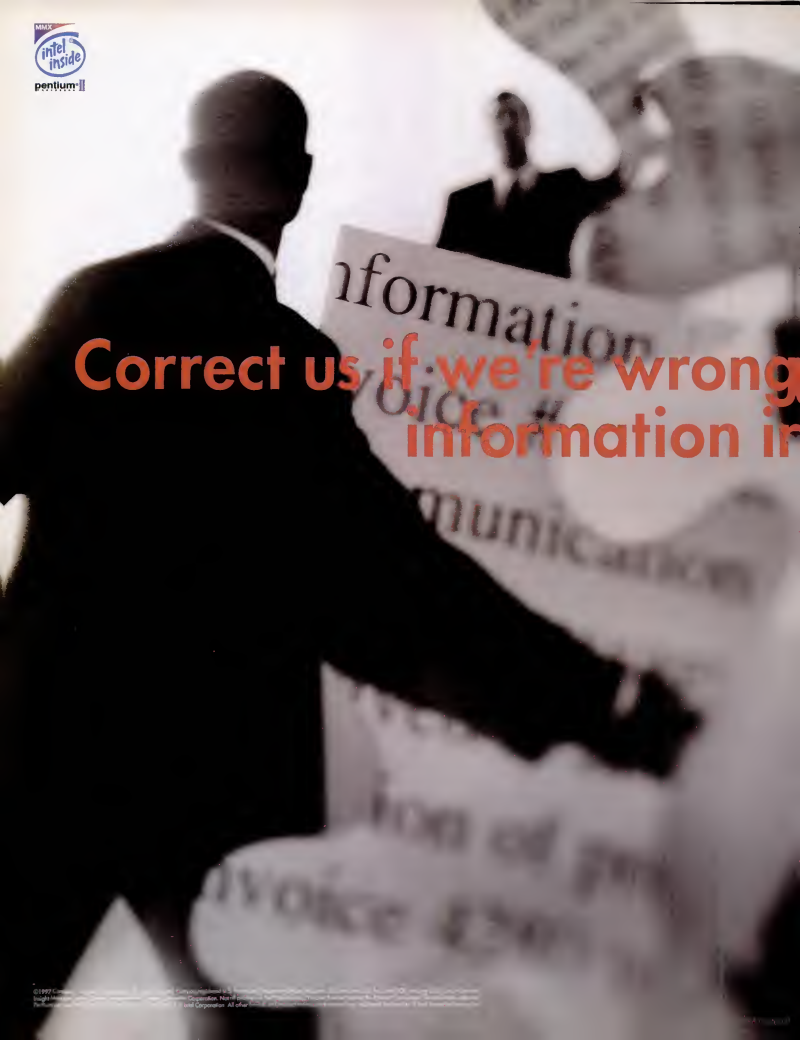
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SHIPPING

Compaq added to its entry-level Armada 1500 family of notebooks. The Armada 1540DM, priced at $2,799, has a 150-MHz Pentium MMX processor, a 12.1-inch dual-scan screen, 16MB of RAM, a 2.1GB hard drive, 2MB of video RAM, a 64-bit graphics chip, and a 20X CD-ROM drive. The Armada 1540DMT is similarly configured but has a 166-MHz Pentium MMX processor and a 12.1-inch active matrix screen. It is priced at $3,699. Compaq Computer Corp.: http://www.compaq.com/.

ANNOUNCED

HEWLETT-PACKARD last week introduced the HP DeskJet 890C Professional Series printers to replace its DeskJet 870C printers. The DeskJet 890C printer is HP's fastest ink-jet printer, producing as many as 9 pages per minute (ppm) for black text and 5 ppm for color. The printer is one of the first DeskJet printers to offer Microsoft Windows NT 4.0 compatibility out of the box. The printers offer photo quality on any paper and increased duty-cycle and network-connectivity options. The printers are expected to sell for about $449. Hewlett Packard Co.: http://www.hp.com/.

SYMANTEC last week announced Norton Safe on the Web, which lets a user set up trusted methods of data access and e-mail encryption. The product has components that analyze the user's system and suggests countermeasures to protect data. The product protects a system from rogue Java applets and ActiveX controls. It associates specific files with trusted applications so files can't be touched by authorized applications. A Browser Security Settings Auditor lets users make informed decisions about the level of security they need when Web browsing. A preview is available free on Symantec's Web page. Symantec Corp.: http://www.symantec.com/.

HP product line getting bigger

■ PC workstations, ultralight notebooks, small-business PCs unveiled

By InfoWorld staff

HEWLETT-PACKARD announced last week PCs, workstations, and an ultrathin notebook that extend the company's product line beyond its current boundaries.

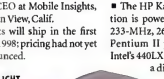
The most unique product that HP unveiled was an ultrathin portable jointly developed with Mitsubishi Electronics.

The mobile unit measures a mere seven-tenths of an inch thick and weighs 3.1 pounds. The unit will use the 200-MHz and 233-MHz Intel Pentium mobile processors, a Mitsubishi 12.1-inch active-matrix display, and it will have a at least a 1GB hard drive. The unit will have 32MB or 64MB of RAM. The device will have two PC Card slots and will also have a track pad. Using lithium-polymer batteries that measure 6.5 mm thick, the device has an operating time of 10 hours with constant-use conditions, according to a Mitsubishi representative.

Some question the usefulness of a keyboard with only .8 mm travel.

"The question is, can they get the keyboard to work right," said Gerry Purdy, CEO at Mobile Insights, in Mountain View, Calif.

The units will ship in the first quarter of 1998; pricing had not yet been announced.



HP'S ULTRALIGHT *unit weighs 3.1 pounds and is .71 inches thick.*

HP's Kayak line is spun out from its Vectra family and has Microsoft Windows NT-based PC workstations designed around Intel's Pentium II processors. The Kayak workstation family is targeted at creative and technical users such as those doing CAD, said Jacques Clay, vice president of HP's Extended Desktop business unit.

There is an opportunity for the high-performance Kayak line in part because former Apple customers are looking for other options, according to Clay.

HP is offering three models of its Kayak PC workstations, which are slated for release in October at prices ranging from $2,250 to $17,760.

■ The HP Kayak XA PC workstation is powered by a single Intel 233-MHz, 266-MHz or 300-MHz Pentium II processor linked to Intel's 440LX chip set, which carves a direct path between the graphics engine and the system memory for faster graphics performance.

■ The HP Kayak XU comes with either a single or dual Intel 266-MHz or 300-MHz Pentium II processor and a Matrox Millennium II graphics card for 2-D business graphics.

■ The HP Kayak XW offers 3-D graphics acceleration based on an AccelEclipse system with a Real-Image graphics engine or HP's Visualize fx4 graphics system, which is designed to triple current Microsoft NT-based 3-D graphics performance, a company official said.

Both Unix and NT systems can share the HP Visualize-fx graphics subsystems, indicating that HP is consolidating hardware.

"HP has completely revised its

▷ HP *page 34*

Multiple open programs

Monitor suppliers shifting to larger screen sizes

By Andy Santoni

MONITOR MAKERS are shifting their attention to 17-inch and 19-inch screen sizes as users are spending more and more time in front of multiple open programs.

An example is Compaq, which last week introduced the V90 19-inch monitor for users such as financial analysts, CAD/CAM engineers, and graphic designers. The V90 offers 18 inches of viewable image size, approximately 2.5 inches more than a 17-inch CRT monitor, but with an estimated street price of $1,000 it is close to the price of a 17-inch monitor, said Eric Shuster, director of Compaq's PC Options division.

MAG INNOVISION, *top, and KDS USA both introduced 19-inch monitors at a price of $999.*

The monitor is designed specifically to meet the needs of users who require greater viewable image sizes but cannot afford the price of a 21-inch CRT monitor, Shuster said.

"The new 19-inch monitors are particularly exciting," said Rhoda Alexander, the senior market analyst at Stanford Resources, in San Jose, Calif.

These monitors offer a significantly larger viewable area than 17-inch units but take up only slightly more desk space, Alexander noted. Alexander said the shift to larger screen sizes helps increase the efficiency of users by allowing them to keep multiple applications open and on screen at once.

Alexander noted that most of the 19-inch monitors use flat, square picture tubes that offer a usable viewing area of about 18 inches.

"There's tremendous interest in 19-inch monitors," agreed Rob Slusher, product manager at KDS USA, in Grove, Calif.

KDS introduced the Visual Sensations VS-19 late last month, trumpeting its 18.8 inches of usable viewing area, which results from using a 20-inch tube.

With a $999 suggested retail price, Slusher expects the VS-19 to sell for as little as $849 on the street, partly because of its use of a less-expensive tube.

"This will be a much less costly unit to produce," Slusher said.

Even at these prices, "not every IS professional has the budget," said Jason Sparks, vice president of sales

▷ MONITORS *page 32*

STREETPRICES *Pentium desktops*

FOR THE WEEK OF SEPT. 15

166-MHz Pentium MMX system[1]	Hard drive	Low	High	Average	Change from August
AST Bravo MS 5166	2.0GB	$1,877	$2,350	$1,978	-4%
Compaq Deskpro 4000	3.2GB	$1,894	$2,131	$2,000	-3%
Dell OptiPlex Gs 5166	3.0GB	Direct price		$1,587	None
Digital Celebris FX2 5166	2.0GB	$1,820	$2,323	$1,993	-4%
Gateway 2000 GP5-166	4.0GB	Direct price		$1,583	-4%
HP Vectra 525 MCx	2.5GB	$1,854	$2,533	$2,018	-5%
IBM PC 350	2.5GB	$2,087	$2,569	$2,228	-3%
Micron Millenia LXE 166	3.2GB	Direct price		$1,619	N/A[2]
Clones/compatibles[3]	4.0GB	$1,208	$1,770	$1,459	-4%
PowerPC system[4]					
Apple Power Macintosh 4400/200	2.0GB	$1,549	$1,680	$1,661	-1%

THE LINEUP

Products	Last priced	Next pricing
CD-ROM drives	July 28	Oct. 27
Flatbed scanners	June 30	Sept. 22
Hard drives	Sept. 1	Nov. 24
Ink-jet printers	Aug. 25	Nov. 10
Laser printers	July 21	Oct. 20
17-inch monitors	July 7	Sept. 29
Multifunction printers	Sept. 8	Dec. 1
Premium desktops	This issue	Oct. 13
Pentium notebooks	Aug. 11	Oct. 6
RAM	Aug. 4	Nov. 3

INFOWORLD STREETPRICES

All recent Street Prices listings are available at http://www.infoworld.com.

InfoWorld Street Prices are based on telephone surveys of resellers, online resources, and print advertising in computer publications and regional newspapers. Price information was collected between Sept. 1 and Sept. 6.

1. Pentium systems include Windows, a keyboard, a mouse, 32MB of RAM, and a 15-inch color monitor, except for the HP system, which has 24MB of RAM. AST, Compaq, Gateway, HP, and Micron systems include a CD-ROM drive.

2. Model not included in August pricing survey.

3. Clones and compatibles are systems with the same features as those listed by name, but they are not as widely available.

4. The PowerPC system includes a 200-MHz PowerPC 603e microprocessor, 32MB of RAM, System 7.5, a mouse, a keyboard, and a CD-ROM drive, but it does not include a monitor.

Adobe to discontinue Persuasion application immediately

By Jeff Walsh

ADOBE HAS DISCONTINUED its Persuasion business-presentation graphics product as of this month, citing that other product areas offer a higher return on investment.

One analyst said the news didn't come as a major surprise, especially considering Adobe competes with Microsoft PowerPoint.

"The business graphics marketplace isn't exactly hot. It's a tough business to be in and you're competing with someone who gives it away," said Chris Le Tocq, an analyst at Dataquest, in San Jose, Calif.

Le Tocq also said Microsoft initially included PowerPoint in Microsoft Office when Word and Excel were the principal products that people were buying. PowerPoint was essentially given away, he said, as the cost of the office suite was cheaper than buying Word and Excel individually.

Users were upset by losing what they said was a superior product to PowerPoint.

"We buy the Office suite and choose not to use PowerPoint, and consciously decided to spend extra money and buy Persuasion. It gives you far more control over the nature of your presentation. We've standardized on Persuasion as a company and this leaves us high and dry," said Chris Kryzan, vice president of marketing at Sonic Solutions, a software company in Novato, Calif.

Kryzan said he hoped Adobe would either reconsider its decision or sell the technology to another company. Kryzan said Adobe was on a sound technical path with Persuasion, and also noted the addition of Web presentations and .PDF support in the final 4.0 release.

A Microsoft representative said the company's research shows most users tend to buy their presentation graphics software as part of a suite, because they can leverage their work easier through integrated applications.

Adobe said it will continue to offer technical support to Persuasion users. Adobe made the announcement to discontinue the product on the Persuasion Web page.

Adobe Systems Inc., in San Jose, can be reached at http://www.adobe.com/.

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Monitors

Continued from page 31

and channel marketing at MAG Innovision, in Santa Ana, Calif.

There are still buyers for 14-inch monitors, but "that's not where our future is," Sparks said. The 15-inch segment, however, is still "stable, strong, and growing," according to Sparks.

The latest monitor from MAG Innovision is the 19-inch DJ800, with an estimated street price of $999, Sparks said.

"Nineteen inches is now the sweet spot," Sparks said.

A 19-inch monitor is now "the ultimate desktop," agreed John Strobel, vice president of business-electronics products at Philips Consumer Electronics.

Philips offers the Brilliance 109 monitor, which includes business audio and a bay for an optional Universal Serial Bus (USB) interface.

With an integrated USB hub, the MicroScan 6P monitor from ADI Systems nonetheless sells for an estimated street price of $975, according to Thomas Bayens, director of marketing.

Compaq Computer Corp., in Houston, can be reached at http://www.compaq.com/.

MAG Innovision Co. Inc., in Santa Ana, Calif., can be reached at http://www.maginnovision.com/.

Philips Consumer Electronics Co., in Atlanta, can be reached at http://www.philips.com/.

ADI Systems Inc., in San Jose, Calif., can be reached at http://www.adiusa.com/.

Rendering ...
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Intel attempts to rally industry behind mobile power saving

INTEL THIS WEEK will host a symposium in San Francisco aimed at rallying the industry around an effort to improve power consumption for next-generation PC notebooks, a company official said.

The effort, dubbed the Mobile Power Initiative, will bring together Intel's major OEM partners, as well as peripheral makers and operating-systems developers, said Frank Spindler, director of marketing at Intel's mobile and handheld products group.

The group will develop tools and guidelines designed to increase the power-consumption efficiency of PC notebooks, Spindler said.

"We'll be looking at long-term trends in the mobile industry for the year-2000 time frame," Spindler said. "It would be good to rally the industry together and do things in a more focused fashion."

Some aspects the Mobile Power Initiative will look at are what kind of adjustments need to be made to the software for mobile PCs, as well as what components are needed to make these systems more power efficient — that is, consume less power and provide more performance.

The move follows Intel's release of two processors targeted at the notebook market, the 200-MHz and 233-MHz versions of the Pentium Processor. (See "Tillamook notebooks set to ship," Sept. 8, page 14.)

Intel officials declined to name any partners in the Mobile Power Initiative.

Intel Corp., in Santa Clara, Calif., can be reached at (408) 987-8080.

— *Torsten Busse, IDG News Service (an* InfoWorld *affiliate), San Francisco*

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HP

Continued from page 31

graphics capability," said Peter ffoulkes, an analyst at Dataquest, in San Jose, Calif.

HP is laying the groundwork for the eventual arrival of the Merced chip, a joint project between Intel and HP that will run PA-RISC or x86 software and is due to make its appearance in 1999.

By standardizing hardware across its NT and Unix platforms, HP can reduce distribution and manufacturing costs, a cost savings that eventually will find its way to the customers, according to ffoulkes.

HP's Brio line is the company's small-business PC line, which will be publicly introduced later this month, according to Clay. (See "HP aims for small to midsize businesses," Sept. 1, page 19.)

In related news, Compaq refreshed its Professional Workstation 5000 line by adding four models in the 5100 line.

According to David Parsons, director of workstation marketing at Compaq, the company has taken the Compaq-developed highly parallel system architecture from the 6000 line and moved it into a desktop form factor in the 5100 line.

Also being added to the 5100 line are single or dual 266-MHz or 300-MHz Pentium II processors.

The systems will occupy the high end of the low-end workstation space, priced from $3,400 to $6,100.

The current 5000 line, based on 200-MHz Pentium Pros, will drop in price to $2,650 and become the low end.

Hewlett-Packard Co., in Palo Alto, Calif., can be reached at http://www.hp.com/.

Compaq Computer Corp., in Houston, can be reached at http://www.compaq.com.

Dan Briody, Lynda Radosevich, Ephraim Schwartz, and Rebecca Sykes and Torsten Busse — San Francisco correspondents for the IDG News Service, an InfoWorld *affiliate — contributed to this article.*

How long have you been waiting for a faster PC Workstation?

WINDOW MANAGER · BRIAN LIVINGSTON

Nascent technology could reduce push bandwidth

A SMALL COMPANY IS on the verge of receiving a U.S. patent for a new technology that can reduce by as much as 90 percent the bandwidth required for Internet push services.

The company, called Kangaroo, is based in Seattle and its technology is called Punch. (The term Punch distinguishes the new software from what two of the company's executives, David Campbell and Roland Faragher-Horwell, consider highly inefficient push software.)

Push technology, of course, is all the rage today. In a typical push scenario, information is sent across the Internet on a regular basis from a central server to hundreds or thousands of subscribers. The information ranges from broad subjects, such as daily news feeds, to data important only to a single company, such as internal engineering manuals that must be kept updated.

Problems arise due to the enormous bandwidth that push technologies can require when feeding data to thousands of end-users. If the PCs in a given subscriber base must poll a central server on a regular basis to see whether there is any new information, the number of packets needed to handle these requests can get very high. And most of today's push technologies require that an entirely new file be sent across the Internet, rather than sending only the few bytes that have changed since the last update.

Kangaroo's Punch technology is based on a completely different model. Until now, updating information from a central source relied on a star topology: A central server sends data out to each recipient in turn. Imagine the spokes radiating out from the hub of a wagon wheel: The server is at the center, and the clients are at the ends of the spokes.

Instead of the inefficient star model, Punch distributes information by "osmosis." Once information is changed in an electronic document, each PC subscriber receives the new information and passes it along to other PCs in the same group.

Kangaroo's software identifies other PCs that are nearby (electronically speaking) and are also part of its "cohort." A server can send new information to any member of a cohort, and the recipient will send it along to other responsive members, which can be on a LAN or the Internet. The software sends a query to other cohort members the first time it is started each day. This start-up query is much less bandwidth-intensive than polling but keeps each client up to date.

On a network of Windows 95 PCs using Punch, a 1-byte change in a 500KB file is automatically communicated to other members of a cohort using only 46 bytes of data. Typical push software requires resending the entire file to communicate the same change.

Kangaroo's new technology can radically reduce the amount of bandwidth needed by companies to send updates to large numbers of end-users. Everything from corporate price lists to global news services can be updated by osmosis, rather than using time-consuming centralized distribution.

Kangaroo has been notified that its patent application has been allowed, the final step before actual issuance. The technology is not a shrink-wrapped product yet, but Kangaroo is working with VARs and software distributors to put it in everything from e-mail clients to database applications.

What little information is currently available on this technology may be found at http://www.thekangaroo.com. You can't buy Punch software in a computer superstore today, but you'll be hearing much more about this breakthrough in the coming months.

Brian Livingston is the co-author of Windows 95 Secrets *and four other Windows books (IDG Books). Send tips to brian_livingston@infoworld.com.*

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Hard Disk Drive Storage	4-Gigabyte (FW ultra SCSI)	9-Gigabyte (FWSCSI)	9-Gigabyte (FWSCSI)
LCD Touchscreen Diagnostics	Not Available	**Standard**	Not Available
CD-ROM	**16X** (IDE)	**16X** (SCSI)	8X (SCSI)
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Redundant Hot-pluggable	Not Available	**Standard**	Optional
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1	**ALR®**	**Revolution™ 6X6 c/s**	10,665.53	$48.10	**6**/Pentium Pro/200MHz
1	**Unisys®**	**Aquanta™ HS/6 c/s**	10,665.53	$53.43	**6**/Pentium Pro/200MHz
2	Unisys®	Aquanta™ HS/6 c/s	9,223.43	$52.59	4/Pentium Pro/200MHz
3	HP®	NetServer™ LX Pro c/s	9,198.37	$49.62	4/Pentium Pro/200MHz
4	NCR®	WorldMark™ 4300S c/s	9,116.00	$85.45	4/Pentium Pro/200MHz
5	Compaq®	ProLiant™ 5000 6/200 Model 1X c/s	9,028.67	$78.17	4/Pentium Pro/200MHz
6	Compaq®	ProLiant™ 5000 6/200 Model 2 c/s	8,311.43	$95.37	4/Pentium Pro/200MHz
7	Digital®	Prioris™ ZX 6200MP	8,145.60	$48.67	4/Pentium Pro/200MHz
8	Compaq®	ProLiant™ 5000 6/200 Model 1X c/s	8,070.00	$57.66	4/Pentium Pro/200MHz

Product comparison chart at left is not representative of the machines used in these benchmarks. * Data current on 7/25/97.
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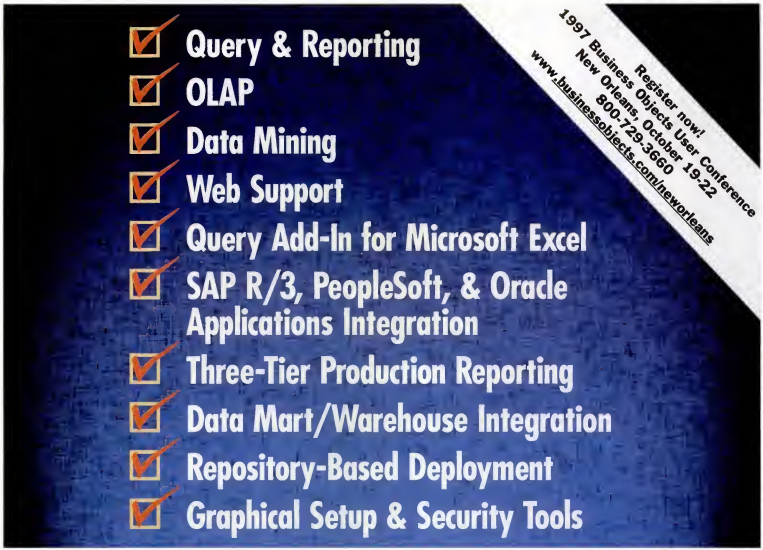

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ANNOUNCED

Computer Network Technology (CNT) plans to release its Ultra-Net product line, touting a Storage Area Network (SAN) approach to organizing disparate network elements. The line, which uses CNT's Ultra-Net SAN software, will initially comprise three products: The UltraNet Storage Director, a high-speed switching platform to link multiple servers and other devices, will be introduced in October, priced starting at $160,000; the UltraNet Storage Gateway, a similar platform for entry-level network customers about the size of a small office, will be released in January 1998, priced starting at $35,000; and the UltraNet Storage Multiplexer, a SCSI-based unit with Fiber Channel capabilities, which can handle as many as 15 storage devices, will be introduced in November, priced at $12,000. Computer Network Technology: (800) 638-8324.

SEAGATE SOFTWARE announced that this fall it will integrate its Seagate Crystal Info enterprise reporting system with PeopleSoft application meta data to provide reporting, querying, and online analytical processing to PeopleSoft users. This functionality will be offered in the next release of Crystal Info, code-named Black-Widow, which is set to ship by December. Seagate Software: (800) 877-2340.

SHIPPED

AIWA is releasing new products in its RAIDstack disk array and TD-series tape-drive lines. Each new modular RAIDstack base unit can handle as many as eight 9GB drives for a total of 63GB of storage. Aiwa RAID arrays are available in PCI-bus and hardware arrays. The product is now available starting from $4,500. The one-quarter-inch tape drive can back up as much as 38MB of data per minute. Aiwa America's Computer Systems Division: (714) 862-0200.

Powersoft strengthens its game

■ New tools suite, PowerBuilder upgrade enhance company's product portfolio

By Ted Smalley Bowen

SYBASE'S Powersoft tools division last week at its annual developers' conference in Nashville, Tenn., took the wraps off of its forthcoming development tools suite while also making the case for the long-term viability of its cornerstone fourth-generation language, PowerBuilder.

Dubbed PowerStudio, Powersoft's tools suite collects a number of existing Powersoft products into an integrated suite. (See chart.)

In keeping with Sybase's previously announced Adaptive Component Architecture, PowerStudio is positioned as a multifaceted component creation, deployment, and management environment. The Sybase component scheme spans client, midtier, and server, supporting major component models and platforms to provide diverse application architecture choices, according to officials.

One Powersoft customer noted that the suite would increase the likelihood of developers crossing over strict categories of third- and fourth-generation languages (4GLs) and Web designers to test tools as they become available.

Powersoft's power play

The company's PowerStudio tools suite will package together the following existing products in its line up.

- **PowerBuilder Enterprise** fourth-generation language
- **PowerJ Enterprise** Java development environment
- **Power++ Enterprise** C++ development tool
- **PowerSite** Web application-development tool
- **PowerDesigner AppModeler** database-application design tool
- **Jaguar** CTS transaction server

"They're giving developers more of a chance to explore new tools as they emerge, with the added value of a single IDE [integrated development environment]," said Dennis Clark, director of production and systems development at Chain Store Guide, in Tampa, Fla.

Powersoft executives at the conference also touted PowerBuilder 6.0, a key piece of PowerSuite. With the new features planned for this upgrade— such as its capability to create PowerBuilder components that conform to industry-standard component models (C++, Component Object Model, and CORBA), to generate Java proxies for accessing

▷ **POWERSOFT** *page 43*

Unix-based servers

HP adds models to its technical server line

By Marc Ferranti and David Pendery

HEWLETT-PACKARD last week unveiled Unix-based servers designed to expand the company's offerings for its core technical markets.

The company's latest additions to its Exemplar server family, which is geared for the industrial design and technical markets, run the HP-UX Unix operating system but also connect workstations running Windows NT, according to company officials.

This is part of the company's continued push to be agnostic about operating systems and to offer a mix of Unix and Windows NT to suit the needs of the widest range of customers while offering a high degree of integration between the two.

HP'S EXEMPLAR *K-class series is based on the company's 64-bit PA-8200 processor.*

"Unix/NT integration is key to HP's strategy," noted Rich Partridge, computer analyst for D.H. Brown Associates, in Port Chester, N.Y. "The Unix desktop is widely being displaced by NT. Clearly, integration [is necessary]."

The new offerings are intended to compete on price and performance with products from HP archrivals Sun Microsystems and Silicon Graphics, officials said.

HP's new midrange K-class and high-end V-class Exemplar servers are designed to offer scalable performance from midrange to supercomputing levels. The servers are aimed at users who are attempting to solve design and high-end analysis problems.

The new K-class models are scalable to six of HP's 64-bit PA-8200 processors. A base model with one 200-MHz chip, with a two-user, HP-UX license, is priced at $66,500.

HP's V-class models, which are scalable to 16 processors, start in price at $157,000 for a system based on a single PA-8200 processor system with a two-user HP-UX license.

Additional CPUs for both K-class and V-class machines are priced at $25,000.

The inclusion of the PA-8200 processor in the new models of both of these lines gives HP a more integrated story to tell, according to Partridge.

"[It] will make the Exemplar line a much more seamless, broad, cohesive range of products," Partridge said.

The new servers in HP's K-class line are available now; the V-class servers are slated for availability in November, according to HP.

The Exemplar line was originally designed by Convex Computers, which HP acquired in 1995 and made a wholly owned subsidiary.

Hewlett-Packard Co., based in Palo Alto, Calif., can be reached at (650) 857-1501 or http://www.hp.com/.

Marc Ferranti is the New York bureau chief for the IDG News Service, an InfoWorld *affiliate.*

THE BUG REPORT

Server bugs and fixes reported to BugNet

Microsoft's System Management Server When using the remote-control feature in Microsoft's System Management Server 1.1 or 1.2 to access a client computer running Windows 95, you may find corruption of the Quick Viewer display, such as wrong colors and missing portions of the remote windows. This usually is caused by client computers using video cards with a bit-mapped buffering feature, such as the Cirrus Logic 5446 or cards that use the Matrox chip set. Microsoft is working on a fix; for now its work-around is to disable bit-map buffering or any other enhanced features of the remote client's graphics card.

Netscape's Enterprise Server If you are running any version of Enterprise Server on Sun Solaris, you may see this Unix error message when starting or stopping the server: "Could not fork new process." Netscape says you need to increase your swap space; the amount you should have varies depending on your physical swap space and system load. Also, when trying to use the Restrict Access, Edit Properties feature of Enterprise Server 3.0 for both Windows NT and Solaris, you may see the following error: "JavaScript Error: http://156.763.87.89/https-Servername/html/adapplet.html, LINE 8 Java is not defined." Netscape says this is actually a client-side error. Make sure your browser supports Java and JavaScript and that both features are on. If you still have problems, Netscape suggests that you upgrade to the latest version of Communicator.

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Sun revamps Solaris price to compete with NT

By Cara Cunningham and Jeff Walsh

IN AN EFFORT to better compete against Microsoft's Windows NT Server, Sun Microsystems has restructured the pricing and licensing agreement of the later release of its Unix OS, Solaris 2.6.

Sun's new pricing structure for Solaris 2.6, released in August and set at $695, introduces a cap of five on the number of concurrent users. Additional users cost $49, Sun officials said.

The company also offers a "buy out" where customers pay $1,600 for unlimited concurrent users.

This new policy was devised as a way for Sun to better compete with NT on the sensitive issue of price, said Brian Croll, director of marketing for Solaris.

Unix OSes such as Solaris have long suffered in head-to-head comparisons with NT because they come out looking more expensive. That is because they traditionally follow an unlimited concurrent user pricing model, while Microsoft does not offer such a license, Croll said.

"What we found was that with NT, it came with a low advertised price of [about] $799, but no unlimited [user] buy-out, so when you add up the number of users, it starts to get pricey," Croll said. "We didn't really have a good response to that; we had always included an unlimited [number of users]. Now we can go more directly against NT."

Sun takes aim

Sun targets Windows NT with Solaris licensing plan.

Solaris 2.6 options

$695 five concurrent users
$49 for each additional user
$1,600 for unlimited users

Windows NT Server 4.0 options

$809 for five users
$1,129 for 10 users
No unlimited user license

But for at least one customer used to supporting an unlimited number of concurrent Solaris users, the policy has only created headaches.

"Sun's new licensing structure for Solaris 2.6, limiting the number of concurrent users for the first time, has caused enough stress here that we will probably choose to stay with 2.5," said one Solaris user who asked not to be identified. "We use a very thick server setup and need to have dozens of people concurrently using each of our servers. This is very frustrating, and we hope Sun will change it soon."

But Croll pointed out that only Solaris customers who buy from VARs would be affected by the licensing cap; system vendors such as Sun's server arm and NCR that sell Solaris normally chose the buy-out licensing model; the cost of the OS is hidden in the total cost of the system. Most of Sun's Solaris business is sold this way, Croll added.

Although most Unix customers are used to, and prefer, the unlimited concurrent user option, one analyst said that Sun is wise to try and compete with NT on price.

"Sun's got to compete with Microsoft," said Mary Hubley, principal analyst at DataPro Information Services Group, in Delran, N.J. "One thing that Microsoft does is to make these creative pricing plans" that do not reflect usage well.

Sun Microsystems Inc., in Palo Alto, Calif., can be reached at (800) 786-7658 or http://www.sun.com.

Powersoft

Continued from page 41

middle-tier PowerBuilder logic, and to generate other client types — officials refuted claims that PowerBuilder has not been kept up to date.

"I'm proud of how modern a development tool PowerBuilder still is," said Sybase chairman and CEO, Mitchell Kertzman, addressing many of the roughly 5,000 attendees during the event's opening session.

Kertzman later noted that the development tools division currently accounts for about 30 percent of Sybase's license revenues, an increase of about 5 percent since Sybase acquired Powersoft in 1995.

Post-PowerBuilder 6.0 plans include generation of Java code and remote server-side debugging, said Jennifer Hetrich, PowerBuilder product marketing manager.

Ultimately, PowerBuilder will become less conspicuous as a standalone tool as a result of the suite scheme, according to Kertzman.

"Long term, there will be one IDE, with PowerScript as a robust 4GL for articulating application logic at a high level of abstraction," Kertzman said. "In that role, I see it continuing indefinitely. I see it becoming one scripting language among others."

PowerScript is PowerBuilder's object-oriented language.

In its first incarnation and in releases soon after, the PowerStudio Enterprise suite will allow developers to edit in one tool a component created in another, to deploy components in distributed transaction applications via Jaguar Component Transaction Server, use the Data-Window database access component in all constituent tools, manage team development via ObjectCycle version control software, and take advantage of other cross-tool synergism, according to Bill Bartow, director of tools product marketing.

Future plans for PowerStudio include a more tightly integrated common IDE, a common development project model across tools, and a component repository drawn from the component manager in PowerSite, ObjectCycle, Sybase's relational database technology, and other sources, said Dave Boswell, vice president and general manager of the Powersoft tools division. He stressed that no timetable has been fixed for the suite's long-term features and that the product's evolution would be gradual.

The PowerStudio Enterprise suite will eventually allow developers to more easily combine common development capabilities in a single project, according to Bartow.

"We're componentizing our own tools. For example, the different painters in PowerBuilder should be pluggable into other tools," Bartow said. "We're building a common integrated development environment, so developers can build an adaptive development environment within which they can choose the HTML editor in PowerSite, the debugger from PowerJ, and the DataWindow from PowerBuilder."

PowerStudio Enterprise, which entered beta testing last week and is set to ship later this year, is priced at $5,995 for new customers and $3,495 for existing tools subscribers. The Enterprise version of PowerBuilder 6.0 for Windows will be available during the fourth quarter, priced starting from $2,995. The Desktop version will be priced at $299, and the Professional version will cost $1,295. Unix and Macintosh versions will follow.

Separately, Powersoft and object request broker vendor Visigenic Software last week announced the signing of a licensing deal: Powersoft will incorporate Visigenic's VisiBroker for C++ and VisiBroker Bridge technology with PowerBuilder 6.0.

Powersoft also announced last week plans to launch the beta program for its PowerSite Web application rapid application development tool next month.

Powersoft Business Group of Sybase Inc., in Concord, Mass., can be reached at (508) 287-1500.

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October 13, 1997

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VISUAL TOOLS 97 AND THE FIVE PLATFORM
Vinod Neeman, Microsoft

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PART II CONTROL CREATION *Keith Pleas, VBPJ Contributing Editor*	**NEW CONTROLS AND FEATURES IN VB 5** *Ken Melior, 32X Corporation*	**APPLICATION OPTIMIZATION: BASICS** *Tom Haines, Financial Dynamics*
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SPECIAL EVENING DISCUSSION		
8:00 p.m.–midnight **MIDNIGHT MADNESS**		

October 14, 1997

INTRODUCTION & LOGISTICS *James Fawcette, FTP, Publisher of VBPJ*

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INFORMAL GROUPS DATABASE DESIGN *moderated by Phil Weber*	**INTRANET DEVELOPMENT** *moderated by Chris Barlow*	

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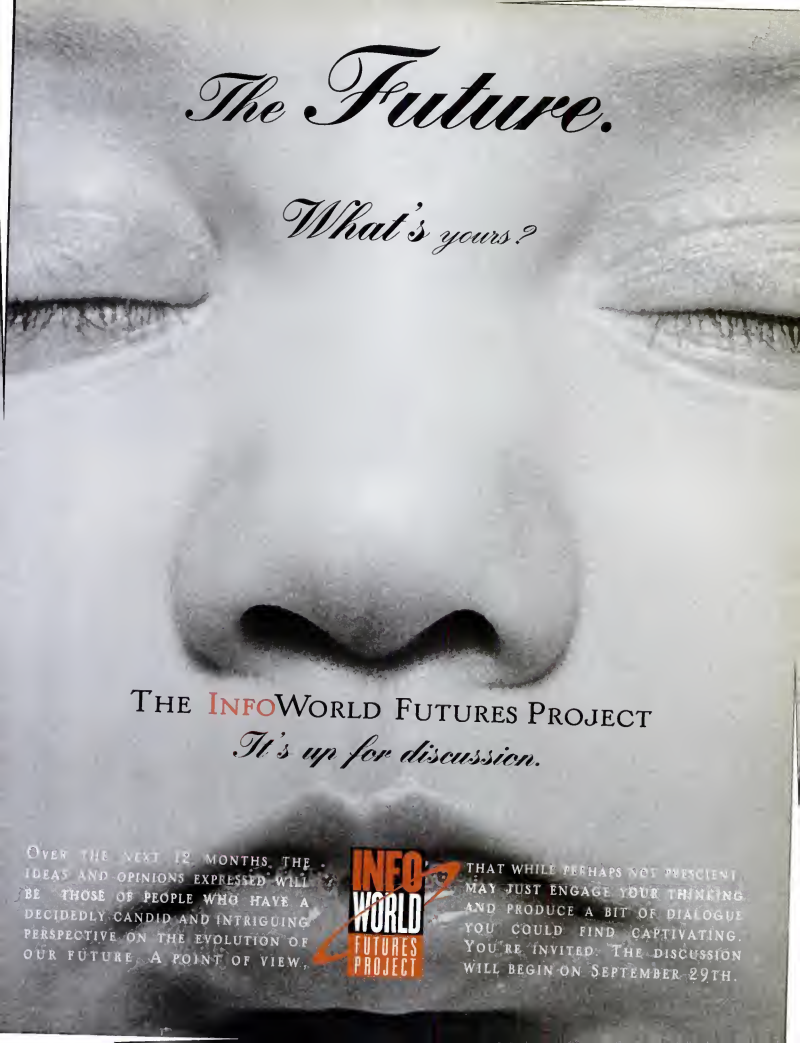
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Unidata to merge database with O2 product

By Paul Krill

FOLLOWING ITS ACQUISITION of O2 Technology, Unidata plans to combine its Nested relational database with O2's object database to create a product that works with distributed objects, as well as with standard object models such as ActiveX and CORBA.

Unidata is calling the resulting database a Universal Object Server that will feature high performance, scalability, and the capability to work with complex data types, such as business forms.

Company officials said that convergence of the two product lines will be gradual, taking place over a three- to five-year time frame. Work is already under way to integrate the technologies, said a Unidata representative.

In the meantime, the first product resulting from the merger will be Version 5.0 of the O2 database. Version 5.0 implements ODBC APIs to link with tools such as the Excel spreadsheet or Seagate Software's Crystal Reports query tool, officials said. The O2 database features page server functionality and the capability to lock an entire page of data for higher throughput in transactions when dealing with objects, according to a representative with O2, based in Versailles, France.

Slated to ship in October on Unix and Windows NT, the database will cost approximately $5,000 per developer seat.

The combined companies, which will retain the Unidata name, will become a roughly $70 million company, offering application development software and services in addition to database products, according to Unidata. Both the O2 and the Nested database — a multivalue database capable of storing tables within tables — will be available separately.

Unidata Inc., in Denver, can be reached at (303) 294-0800.

DATA GENERAL MAKES THIN SERVER PLANS

By Cara Cunningham

LOOKING TO AUGMENT its Aviion server business, Data General is pursuing a thin server strategy designed to put simple, single-purpose devices between traditional clients and servers.

Following the launch of its first thin server last week called SiteStak (see "Data General introduces SiteStak thin Web server," Sept. 8, page 14), the company plans to deliver a series of devices under its ThiinLine label.

Within two months, the company will announce the next two thin servers in the ThiinLine family, said Tom West, Data General senior vice president.

> **Data General's ThiinLine servers run an embedded operating system that requires little user intervention, officials said.**

Among the thin servers Data General is working on is a Web server the size of a floppy drive that could be embedded in another device to offer access to the Internet, West said.

To illustrate such a partnership, Data General officials showed a prototype of a child's teddy bear with an embedded Web server that, through a Web interface and via cellular connections, could be programmed to recite bedtime stories.

Such a thin server, which runs an embedded operating system, would act as the piece between the user interface and data stored on a back-end server, West explained, performing functions such as connecting to the Internet as the end-user device is turned on.

In a somewhat bold move, Data General is staying away from industry-standard technology with many of its future thin servers.

"We could care less about Java, and there's no Microsoft or Intel in here," West said, holding a prototype of the embedded Web server.

Data General Corp., in Westboro, Mass., can be reached at (508) 480-7350.

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HELP DESK · BRETT GLASS

HP JetAdmin packet storms controllable with option change

In your Aug. 25 Help Desk column, you mention that Hewlett-Packard's JetAdmin utility can congest networks with ARP [Address Recognition Protocol] requests. [See "Beware: HP printer drivers can congest your network with many ARP requests," page 38.] How can the program be set to avoid this behavior?

Kevin Vanderwater

Reader John O'Neill reports that you can turn off the network-congesting ARP storms by running JetAdmin and selecting Options/Preferences. Select the TCP/IP Discovery tab, and uncheck the box Broadcast. He also reports that HP has disabled these broadcasts by default in the latest version of JetAdmin.

We've just added a new workstation to our office, the first that runs Windows OSR2. After a Dial-Up Networking connection is made, the dialog box describing the status of the connection is minimized, and the small modem icon appears in the "tray" in the toolbar. We've trained our users to close the open modem connection by clicking the Disconnect button in the dialog box when they are finished with their sessions. Unfortunately, if they don't see that dialog box, there's nothing to remind them to disconnect! Is there a way to keep the dialog box visible?

Ron Wichner

The solution is simple, if well-hidden. Open the My Computer icon on the desktop, then the Dial-Up Networking folder. Select Connections/Settings. The check boxes on the property sheet will let you select whether the dialog box remains on the desktop — and whether an icon appears in the Toolbar "tray."

When a Windows 95 client attempts to log in to a Windows NT host with various protocols enabled, it cannot map network drives to local drives. I get an error message saying that the workstation cannot access the resource "\\mycomputername\IPC$."

Bob Stegall

Although NT is advertised as a multiprotocol server, for some reason a single client cannot connect to it using both NetBIOS and IP at the same time. The Microsoft Knowledge Base article at http://www.microsoft.com/kb/articles/q159/7/70.htm explains the problem and suggests solutions.

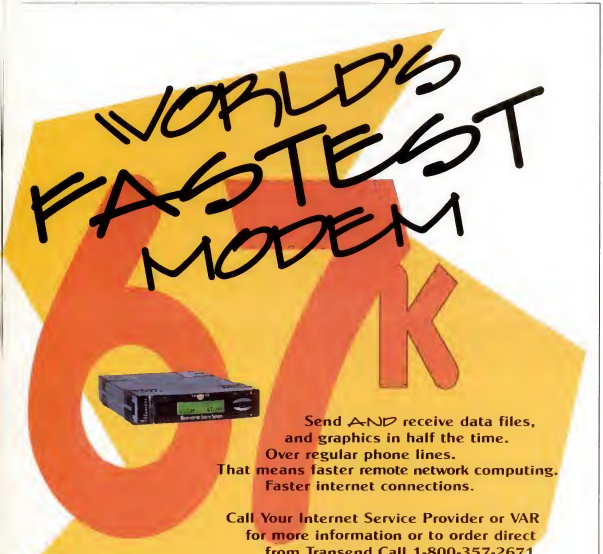
More on 'extra' drives

In the Sept. 1 column, I mentioned several possible causes of "phantom" IDE drives — duplicates of existing disk volumes that spontaneously appear on your system. (See "Faulty hardware is probable source of 'phantom' drive," page 44.) Since then, readers have reported three more possible causes. One is an incorrect setting of the "master/slave" jumpers — for example, setting a drive to believe it's the only device on the cable when another is present. Another documented cause is a faulty drive (most often solved by replacing the unit). Finally, reader Michael Slack of Firmware reports that a Windows bug can sometimes be responsible; see http://www.firmware.com/pb4ts/w95partn.htm for details.

In all cases, the OS' built-in disk caching software won't know that the second drive is not real and may unwittingly corrupt your data. So if a phantom drive shows up, turn off caching, avoid accessing the phantom drive and fix the problem promptly.

Search the Help Desk archives on InfoWorld Electric for previous weeks' columns at http://www.infoworld.com/cgi-bin/displayNew.pl?/glass/bglist.htm.

Brett Glass has been working with PCs and networks and fixing their bugs for 15 years. To submit a Help Desk query, call (800) 227-8365, Ext. 702, or send e-mail to brett_glass @infoworld.com. Visit his forum on InfoWorld Electric *at http://www.infoworld.com.*



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ANNOUNCED

Technologic last week announced a service that manages companies' intranet or Internet firewalls. The service includes definition and setup of security policies; installation; and monitoring and emergency response. It is initially for users of Technologic's Interceptor Firewall Appliance or Check Point Software's FireWall-1, but other firewalls will be supported in the future. The service is available now, and prices range from $1,800 to $2,700 per month. Technologic Inc.; http://www.tlogic.com; (800) 615-9911.

ACC announced last week its second Tigris Integrated Access Platform, a stackable, three-slot remote access concentrator for delivering information to large numbers of remote sites over TCP/IP, IPX, Systems Network Architecture, and AppleTalk networks. ACC also introduced an entry-level point of presence (POP) solution, the Tigris T1/E1 POP, which combines the Tigris with a control card and four ISDN Primary Rate Interfaces, two 10/100Mbps Ethernet ports, and a 48- or 62-port modem card. The three-slot Tigris chassis will ship this month for $1,295, and the POP bundle is priced at $29,995. Advanced Computer Communications: (805) 685-4455; http://www.acc.com.

BUS-TECH has licensed IBM's NT3270E Server software to include in its NetShuttle family of Intranet-to-mainframe connectivity products. This provides TCP/IP and browser-based client access to System/390 Mainframe Systems Network Architecture applications and print services. The software will be an option for Bus-Tech's NetShuttle 140 system and bundled with IBM's Host On-Demand, a Java-based 3270 terminal application. Under the terms of the deal, Bus-Tech will market the software as an option, while IBM will provide support. Bus-Tech Inc.; (781) 272 8200; http://www.bustech.com.

Intel ups the ante in NIC wars

■ Fast Ethernet adapters are integrated into a single chip

By Stephen Lawson

THE NEXT GENERATION of Fast Ethernet LAN adapters is taking shape with products that are integrated into a single chip and offer features to make servers and PCs easier to manage and maintain.

Intel last week announced it has begun shipping its first single-processor Fast Ethernet network interface card (NIC) and will introduce later this year another version of the NIC that includes remote wake-up, support for Advanced Configuration and Power Interface (ACPI), and other features to support centralized management.

The Intel EtherExpress Pro/100+ is built around the company's 82558 processor. Company officials said the high level of chip integration makes the adapter 30 percent more efficient than Intel's previous Fast Ethernet offering, although it carries the same price, $84 each in a pack of 80.

In addition, it includes a failover capability that shifts a server's connection to a backup NIC automatically if the primary adapter fails. Officials said the backup will take over without any data loss and does not require intervention by an administrator.

A second adapter built with the 82558, scheduled to ship in PCs from Intel partner companies later this year, will include the Wake-on-LAN technology developed by Intel and IBM as well as remote boot-up by Intel's LANDesk Service Agent. These technologies allow remote management of PCs after hours. The NIC supports ACPI, and allows software-based filtering to customize what kinds of packets can wake up a PC.

Rival 3Com will counter the new Intel products with enhancements to its NICs this fall. The company's 3C917 processor, announced earlier this year, will also support ACPI and is designed to allow for the remote management of existing PCs.

One IS engineer swapped an Intel Pro 100+ NIC for a failing FDDI adapter to complete a broad software deployment and said the adapter performed flawlessly. He added that he is excited about remote management features.

"There's a lot of management we'd like to do after hours," said Jeff Godfrey, a systems engineer at Roche BioScience, in Palo Alto, Calif. "Being able to power on a machine after hours would be awesome."

Analysts said the rapid evolution of adapters and their capabilities will benefit users.

"This is a real push-pull competition between Intel and 3Com, and where one of them goes, the other is not far behind," said Virginia Brooks, an analyst at the Aberdeen Group, in Boston. "Users are able to get vastly improved functionality at the same prices they paid for previous-generation NICs."

Intel Corp., in Santa Clara, Calif., can be reached at http://www.intel.com. 3Com Corp., also in Santa Clara, is at http://www.3com.com.

▸ **The ACPI specification, developed by Intel, Microsoft, and Toshiba, allows a PC's OS to monitor and control system configuration.**

Micromuse set to preview SLA monitoring

By Emily Fitzloff

MICROMUSE WILL OFFER a sneak preview of the next member of its Netcool product line this week at the company's Service Level Agreements and the Advent of Service-Level Management conference in New York.

Scheduled for official announcement at next month's NetWorld+Interop show in Atlanta, Netcool/Reporter is a Java-based application that automates compliance with service level agreements (SLAs), according to Micromuse executives.

SLAs are contracts that guarantee a certain level of bandwidth for services including Internet connectivity and ATM or frame relay.

Netcool/Reporter is a modular application designed to run with Micromuse's flagship Netcool/Omnibus system. Netcool/Omnibus is an application that uses the Object-Server real-time memory-resident SQL database repository to monitor events from more than 30 application environments, management systems, and devices.

Netcool/Reporter reports are generated in real time by matching SLAs to the fault data gathered by the ObjectServer.

Netcool/Reporter also offers generic reports, which are pre-configured and correlate event time and frequency statistics.

The product will ship in November, when pricing will be announced.

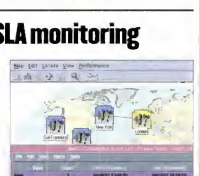
Analysts agreed that the need for SLAs is growing exponentially with the use of event managers to improve the availability of applications.

"The lack of documentation regarding adherence to SLAs is placing a large cost demand on companies," said Steve Foote, vice president of research strategy at the Hurwitz Group, in Boston.

Micromuse executives said that later versions of Netcool/Reporter will include support for user and object authentication and authorization, and improved security.

According to executives, additions to the Netcool product family include a Customer Network Management provisioning and Virtual Private Network viewing module, a passive and proactive alert and performance data gathering module, a personnel escalation and response management module, and a high-availability and process automation module.

Micromuse Inc., in San Francisco, is at (415) 538-9090 or http://www.netcool.com.



NETCOOL/REPORTER *will run in conjunction with Netcool/Omnibus, which collects event data from applications, systems, and devices.*

MOTOROLA CHIP SET MIXES ISDN AND ANALOG

By Rebecca Sykes

A NEW CHIP SET from Motorola's Semiconductor Group is designed to let users operate their modems as 56Kbps analog or ISDN devices.

The Motorola ISA Passive ISDN + Modem system is due for shipment in the fourth quarter to modem- and PC-makers for inclusion in their own products. It is based on the K56flex modem technology promoted by Lucent and Rockwell (see related article, page 58).

The chip set is targeted at users, especially consumers, who want immediate Internet access through their existing telephone lines but who may want to upgrade to ISDN later, according to Marc Davidson, analog modem strategic marketing manager at Motorola.

With modems or PCs based on the new chip set, "you can get up and running with 56 kilobits immediately," Davidson said. "If you decide [later] that you want to upgrade and an ISDN service is available in your area, you wouldn't need to go out and buy another box."

In addition, the chip set offers customers backward compatibility, so that if they are using its ISDN capability and they call a bulletin board that has analog modems at its end, they would not have any problem connecting, Davidson said.

One analyst said that ISDN realities could impede the current popularity of analog- and ISDN-capable modems and PCs.

Especially in the United States, building the ISDN adapter technology directly into a product could necessitate some reprogramming, because ISDN configuration differs depending on the carrier that provides the service, according to Abner Germanow, an analyst at market researcher International Data Corp., in Framingham, Mass.

"ISDN is not a plug-and-play technology in this country," Germanow said. In fact, many people get their ISDN adapters directly from their carrier precisely to avoid configuration difficulties, he said.

Germanow said that a different potential impediment exists in Europe, where ISDN essentially is

▸ **CHIP SET** *page 58*

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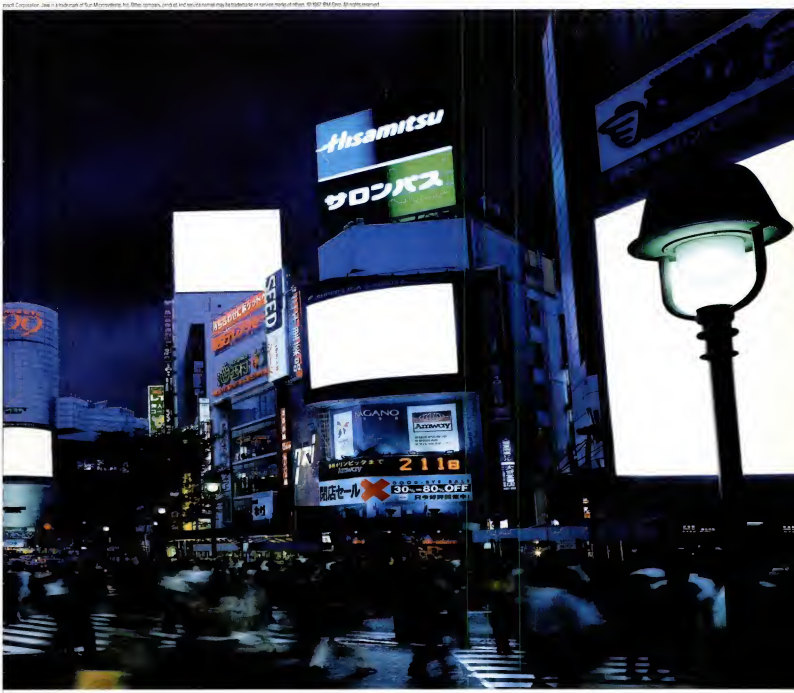

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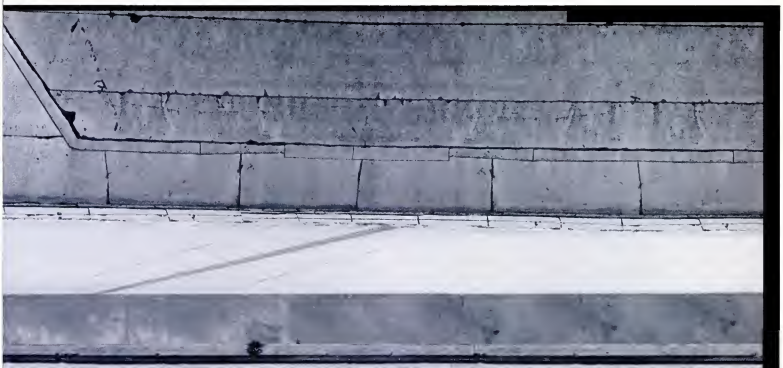

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More delays possible as 56Kbps standards war rages on

By Stephen Lawson

THE LATEST MOVES by the warring camps touting competing 56Kbps modem technologies raise the specter of even greater delays in the approval of a single, combined specification.

As the International Telecommunications Union (ITU) last month prepared to draw up a draft of a standard that would include elements of the K56flex and x2 technologies, one lead vendor laid its cards on the table with details of how it would license its contribution to the specification.

▸ K56flex was developed by Lucent, Rockwell Semiconductor, and Motorola. x2 was developed by U.S. Robotics, now part of 3Com.

Officials at 3Com and its U.S. Robotics division said the company has the exclusive right to license 56Kbps technology that it claims is at the core of any 56Kbps modem. Once the inventions are patented, they said, 3Com will license its technology to each manufacturer for $100,000, or a per-piece fee limited to $150,000 total.

The ITU's 56Kbps group met last week to vote on a first draft of the combined standard. But even approval of this draft, which, if passed, would be scheduled for a final ratification vote in January, might not end the conflict. And it would not erase resentment of frustrated users.

"What we've got is a situation where I can deploy 56Kbps modem support in the central office, and I've got a bunch of users out in the field who can't use it," said Dave Brown, IS manager at *The New York Times*. The company approved U.S. Robotics modems for use by remote employees but uses Cisco AS5200 access concentrators, which can only use the rival K56flex technology.

"In my opinion, it's a political issue, because 3Com is trying to go head to head with Cisco," Brown said. "To distinguish themselves in the remote market, Cisco is supporting a different standard than 3Com."

Analysts said the rancor between opposing vendors has held up a powerful technology and may continue to hamstring users.

Possible conflicting claims to the underlying technology for 56Kbps modems could set off a legal battle that would tie up the standards process for a year or more, said Craig Johnson, at CurrentAnalysis, in Ashburn, Va.

A Lucent representative declined to comment on the patent-pending technology claimed by 3Com but said Lucent holds the earliest and most basic patent for 56Kbps modems.

Brad Baldwin, an analyst at International Data Corp., in Framingham, Mass., is dismayed by the modem war.

"This has harmed the industry and harmed the market," Baldwin said.

3Com Corp., in Santa Clara, Calif., is at (408) 764-5000. Lucent Technologies Inc., in Murray Hill, N.J., is at (888) 584-6366 (toll-free).

Chip set

Continued from page 53

plug and play and configuration is standard. Because ISDN is not much more expensive than analog, users may not feel a need to buy a dual-capability modem, preferring instead to purchase an ISDN-capable modem or PC, he said.

Nonetheless, Germanow said that modems and PCs based on the chip set will probably be attractive to users who want ISDN but don't live in an area where it is available.

"Where it is nice is if you really want ISDN but you can't get it right now," Germanow said. "It's a good story as being able to future-proof yourself."

Motorola Inc., in Schaumburg, Ill., can be reached at (847) 576-5000 or http://www.motorola.com/.

Rebecca Sykes is a Boston correspondent for the IDG News Service, an InfoWorld *affiliate.*

SIEMENS

The first thing we did was put ourselves i

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NuView, Compaq aim to manage NT hardware and software

By Emily Fitzloff

NUVIEW, PROVIDER of network management software solutions for the Windows NT market, plans to announce this week a strategic partnership with Compaq Computer to deliver centralized, proactive, and automated control of Compaq systems running Windows NT.

NuView executives said that by leveraging the hardware offerings that Compaq will bring to the table with its own software solutions, the company will be able to offer total end-to-end management of Windows NT-based systems.

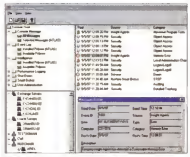
The company plans to integrate NuView ManageX with Compaq's management applications, Insight Manager and Desktop Intelligent Manageability, so that IT administrators can monitor the performance and availability of their entire Windows NT distributed enterprise.

This combined solution will enable administrators to manage Compaq systems as well as the Windows NT operating system and NT-based applications, including the Microsoft BackOffice suite from the NuView Management Console (NMC).

NMC is based on the Microsoft Management Console (MMC) standard. In addition to MMC, NuView also bases its solutions on other native Microsoft technologies, including its Distributed Component Object Model and ActiveX.

Karl Chen, NuView's vice president of marketing, said that the integration will "take the guesswork out of management — whether a problem is hardware- or software-related will no longer be in question."

Existing ManageX customers seemed pleased. Ed Bianco, chief information officer at Lowell General Hospital, in Lowell, Mass., said that NuView has made managing NT environments much easier for him and his staff.



NUVIEW MANAGEMENT CONSOLE *will also allow Compaq systems to be managed.*

Regarding the integration with Compaq, Bianco said that this step will be "a very strategic one" for his department, which has a large installed base of Windows NT-based Compaq servers.

"I would recommend [this solution] to anyone rolling out NT in centralized or distributed environments," Bianco said.

NuView is also scheduled to announce this week a strategic partnership with XLConnect, a provider of international systems management outsourcing and diagnostic services for companies' mission-critical enterprise networks.

Under the terms of this alliance, XLConnect will offer NuView ManageX as its standard solution for providing outsource management for Windows NT-based systems and applications.

NuView ManageX, integrated with Compaq Insight Manager and Desktop Intelligent Manageability, will be available in the fourth quarter. Pricing has not been released.

NuView Inc., in Houston, can be reached at http://www.nuview.com. Compaq Computer Corp., in Houston, can be reached at http://www.compaq.com. XLConnect Solutions Inc., in Exton, Pa., is at http://www.xlconnect.com.

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▸ Consolidated remote-access server

Cubix server boasts SMP support, fault tolerance

■ Lack of remote authentication dial-in detracts from overall usefulness

By Jeff Symoens

THE LATEST MEMBER of Cubix's RemoteServ/IS family, the Series 5000 model, adds symmetric multiprocessing (SMP) capabilities to the company's multi-CPU subsystem consolidated server line. The model provides better server performance for Citrix's WinFrame, which comes bundled with the product. With the Series 5000, Cubix provides a solid remote network-access solution on its already rugged server hardware.

Along with support for two dual-200-MHz Pentium Pro processor cards, the Series 5000 also provides continued support for clustered load-balancing and rules-based

THE BOTTOM LINE

RemoteServ/IS Series 5000

HOT / COLD

This update to the RemoteServ/IS product line adds dual-processor support to the remote-access server, making the Series 5000 a more appropriate platform for Citrix's WinFrame server.

Pros: Provides good load-balancing support for clustering several Citrix servers and modem clusters across several severs; administrator-configurable rules allow automatic determination of remote-node or remote-control operation for dial-in clients.

Cons: Lacks support for Macintosh, OS/2, and Unix dial-up clients.

Cubix Corp., *Carson City, Nev.; (800) 829-0550, (702) 888-1000 fax: (702) 888-1001; sales@cubix.com; http://www.cubix.com.*

Price: *Starts at $17,000 (includes CPU chassis), one 200-MHz dual Pentium Pro subsystem (with 256KB cache, 128MB of RAM, and a 2GB SCSI drive), 15-session Citrix WinFrame license, and WorldDesk and GlobalVision management software.*

Platforms: *Client platform support included for DOS, Windows 3.x, Windows 95, and Windows NT.*

remote application policies.

Overall, I was pretty impressed with the unit. The product's feature set offers some unique advantages as a remote-access server. Particularly appealing is the ability to create rules to determine whether an application will run locally on a dial-up client (remote node) or to spawn the application in a WinFrame session (remote control). This allows the product to provide both remote-node and WinFrame remote-access solutions in a manner that is nearly seamless to users.

But the product's lack of support for Remote Authentication Dial-In User Service (RADIUS) and various OSes as remote-node clients kept me from being too enthusiastic.

Rugged chassis

The Series 5000 sports the traditional Cubix base chassis, which is constructed like an armored car. Although I could probably blast through the case with dynamite, I could also probably drop a few bricks on this box without disrupting service.

The addition of dual-processor subsystems allows the server to offer more power and support more users reliably. Like other products in the Cubix line, the Series 5000 can be cascaded with other units, is rack-mountable, and sports hot-swappable, redundant power supplies and several fans for adequate ventilation.

Flexible management

The Series 5000 comes with Cubix's WorldDesk management software. WorldDesk allows for fairly easy management of various aspects of the product, including dial-in and dial-out user access control, as well as providing each CPU subsystem with a load-balancing, clustering capability.

CUBIX'S *chassis-based products, such as the RemoteServ/IS Series 5000, offer rugged, fault-tolerant systems for multiple-CPU systems.*

Additional SNMP-based management is offered by the company's GlobalVision software, also bundled with the product.

Although I found that the load-balancing feature performed adequately, WorldDesk does not offer fail-over and fail-back capabilities, although there would be little benefit to this feature when using the product exclusively as a remote-access server.

WorldDesk is flexible when it comes to user authentication. The product supports dial-in user authentication against Novell NetWare bindery and NDS servers, as well as Windows NT user directories. But I was a little disappointed to see that the product does not support authentication against RADIUS-compliant directories, the emerging standard for remote user authentication.

As a remote-access solution, RemoteServ/IS already does a good job of offering both remote-node and remote-control access to the corporate network. With additional support for dual processor subsystems, the new Series 5000 can provide more power and do a better job serving more WinFrame clients than its predecessor.

Jeff Symoens (jeff_symoens@infoworld.com) is a senior analyst at the InfoWorld Test Center.

THIS WEEK

START

■ Ghost 3.1a 62D
■ ImageBlaster Pro 2.1 .....62D
■ ImageMasster 200p, Version 1.11 .....62D
■ LabExpert 2.1 .....62D
■ Loose Cables 62H

HEAD TO HEAD

When it's time for the dreaded task of a companywide system upgrade, several options can speed up the chore. See our Head-to-Head review of solutions from Innovative Software, KeyLabs, and Intelligent Computer Solutions on page 62D for our recommendation.

HOW WE REVIEW

Product Reviews examine new products, focusing on their usability, features, and suitability to task. Our expert reviewers rate shipping products on a scale of cold to hot. The authors do not always employ the solutions-based methods of our Comparisons, so their conclusions may be different.

▸ Printer administration

JetAdmin 3.0 gains heartier Web interface in bid for Windows parity

By Eric Hall

PRINTER configuration and job management via the Web have been possible for some time through Hewlett-Packard's Web-based version of its powerful JetAdmin software. However, it has always been the poor cousin of the Windows-based product. But the beta version of Web JetAdmin 3.0 indicates that this is about to change dramatically, bringing the Web product on par with the Windows version.

BETA

Web JetAdmin 3.0 provides full control over any HP printer — and limited control over any printer — that is managed by an HP JetDirect print server. If the printer type is "known" to the software and is accessible through an HP JetDirect server, then printer-configuration and job-management controls are made available using standard browser-based components.

Although the product provides strong management capabilities for these printers, you can't use the product if you don't have JetDirect servers. This is the key difference between the Web and Windows versions, because the latter allows you to manage printers directly attached to a system's local parallel port. Web JetAdmin requires that managed printers be attached to JetDirect cards or print servers.

However, Web JetAdmin does allow you to configure printers attached to JetDirect systems over IP or IPX. You won't have to replace all of your older JetDirect systems in order to take advantage of the enhanced management features.

Integrated Web server

Earlier versions of Web JetAdmin required that you have a Web server already in place on a Windows NT, Solaris, HP-UX, or OS/2.0 Warp Server system before you can install and use the printer-management software. Web JetAdmin 3.0 includes a native Web server that is easily installed and immediately available — with almost no server configuration required.

THE BOTTOM LINE

Web JetAdmin 3.0, beta

This software provides real-time, extensive printer-management services using just a Web browser — a boon to remote or non-Windows users, but not a replacement for JetAdmin.

Pros: Self-contained Web server allows for easy setup and distribution.

Cons: Limited to printers managed through JetDirect print servers; access control services are not integrated with other authentication services.

Hewlett-Packard Co., *Palo Alto, Calif.; (415) 857-1501; http://www.hp.com/go/webjetadmin/.*

Price: *Not set, although current versions are freely available from http://www.hp.com/go/webjetadmin/.*

Platforms: *Web server runs on Windows NT, Sun Solaris, HP-UX, and OS/2 Warp Server; Web browser: Netscape Navigator 2.1 or later, Microsoft Internet Explorer 3.1 or later.*

Ship date: *November.*

The integrated Web server also supports native security restrictions, allowing administrators to lock users out of the entire program or to restrict access to groups of printers and even individual printers on the network. However, because it's not integrated with existing Web servers, no advanced authentication is supported.

The new version also supports embedded Java services that enhance the administrative experience. Although Version 2.0 supported JavaScript, the additional support for Java adds to overall usability. For example, Web JetDirect 3.0 uses Java to automatically update the device-status screens in real time, eliminating the need to constantly hit the reload button.

Printer-management services

The new version includes printer descriptions for more than 70 different printers. Additionally, any printers that conform to the printer SNMP Management Information Base specification can also be

▸ JETADMIN *page 62G*

▸System installation tools

Ghost beats out rivals for disk replication options

By Mike Avery

FOR AS LONG as I have used computers, software installation has been one of the most mind-numbing, time-wasting, and inescapable tasks around, especially for a system manager in a large company. A while ago I looked at an earlier version of Innovative Software's Ghost that eased this by letting the manager make an image of a system and load it onto other PCs. (See http://www.infoworld.com/printlinks.)

Since then, KeyLabs has introduced its ImageBlaster and ImageBlaster Pro software to solve the same problem, and Intelligent Computer Solutions (ICS) introduced its ImageMasster 200p hardware disk duplicator.

HEAD to HEAD

- Ghost 3.1a
- ImageBlaster Pro 2.1
- ImageMasster 200p, Version 1.11

The good news is that all of these products can copy disk drives and do so quickly. For most shops, I would suggest a software solution, though deciding which one is a tough call. Of the two software solutions I reviewed, Ghost 3.1a seems slightly more robust, but ImageBlaster Pro 2.1 has some attractive features not found in Ghost.

Features and performance breakdown

	Ghost 3.1a	ImageBlaster Pro 2.1	ImageMasster 200p
Type of solution	software	software	hardware
Simultaneous multiple copies	Yes, with degrading performance	Yes, with flat performance	Yes, as many as two
Disk partition resizing	Yes	Yes	Yes
Time to create image of 125MB hard drive, maximum compression	10:71*	9:16	N/A
Time to create image of 125MB hard drive, minimal or no compression	3:51 (no compression)	6:04 (minimal compression)	N/A
Time to create new 125MB disk from compressed image	10:25	6:57	N/A
Time to create new 125MB disk from minimally compressed image or another disk	7:35	6:44	2:02

*Time in minutes:seconds.

THE BOTTOM LINE

Innovative Software's Ghost created this market and still has an edge in robustness and compression. But KeyLabs' ImageBlaster Pro offers the capability to copy more workstations without performance loss — a boon at major system-upgrade time. Intelligent Computer Solutions' ImageMasster 200P may be the best choice for a bum-in facility, but it was the most fragile product of the three.

Ghost 3.1a

Pros: Unfazed by disk problems that hindered the other two products; offers the greatest level of compression, helps minimize server storage space needed to store disk images; excellent advice offered on the company's Web site.
Cons: Could be faster.

Innovative Software Ltd., Milwaukie, Wis.; (800) 817-5119; fax: (414) 964-2201; sales@ghostsoft.com.
Price: *$750 for 100 nodes, single session; $1,500 for multiple session.*
Platforms: *Runs only on DOS but copies disks for almost any platform.*

ImageBlaster Pro 2.1

Pros: Can upgrade many nodes without suffering a major performance loss by using broadcast technology; can copy all or some partitions on a hard disk.
Cons: Disk copy process stopped by minor disk problems that did not hinder Ghost; not as fast as ImageMasster.

KeyLabs Inc., Provo, Utah; (801) 377-5404, fax: (801) 377-5439; info@keylabs.com; http://www.keylabs.com.
Price: *$3,000 for 100 nodes, Pro version.*
Platforms: *Runs only on DOS, but copies disks for almost any platform.*

ImageMasster 200p, Version 1.11

Pros: Does not increase network traffic; fastest performer of the three products; Controlling program installs easily.
Cons: Only works with IDE drives; finicky with drive problems; needs master disk to duplicate; restoring configuration requires override code.

Intelligent Computer Solutions, Chatsworth, Calif., (818) 998-5805; fax: (818) 998-3190; sales@icsiq.com; http://www.ics-iq.com.
Price: *$1,695*
Platforms: *Control software runs on Windows 95 but copies disks for most platforms.*

The software approach

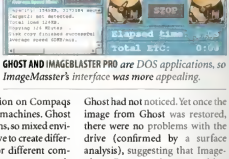
Ghost and ImageBlaster Pro are very similar DOS programs. To use them, you will have to reboot your PC on a DOS diskette, a minor inconvenience. Both products make a master reference image of the hard disk you select, and that image is used to create new hard disks.

Compressing the images helps to reduce storage requirements and makes it easier to store a number of images for the different hardware and software platforms you support. With Ghost, the image can be uncompressed or compressed; ImageBlaster Pro can minimally or fully compress the image. ImageBlaster Pro's compression was slightly faster but a bit less effective than that of Ghost.

Both products are licensed based on the number of PCs that will use the product, and the prices are low enough that both will pay for themselves even if used only once.

KeyLabs offers unlimited site licenses, helpful for large organizations. For copying to multiple PCs, Ghost only licenses you to make more copies. But ImageBlaster Pro uses broadcast technology to get the most out of network bandwidth.

ImageBlaster Pro offered the capability to copy all or just a few of the partitions on a hard disk. This is convenient for Compaq users in mixed shops. It is easy to create the Compaq diagnostic partition on Compaqs but not on other machines. Ghost copies all partitions, so mixed environments may have to create different image files for different computers, increasing storage needs and confusion.



GHOST AND IMAGEBLASTER PRO *are DOS applications, so ImageMasster's interface was more appealing.*

Both are reliable and stable products, but ImageBlaster Pro stopped creating an image when it found bad spots on a hard drive that Ghost had not noticed. Yet once the image from Ghost was restored, there were no problems with the drive (confirmed by a surface analysis), suggesting that ImageBlaster Pro was acting too sensitive.

▸INSTALLATION TOOLS *page 62G*

QUICK BYTE

LabExpert takes the drudgery out of lab and classroom setups

LAB MAINTENANCE

LabExpert 2.1

As an independent testing organization, KeyLabs has hundreds of lab PCs that must reconfigure at the drop of a hat. Then the organization realized that system managers who maintain test labs or classrooms have the same need.

Using KeyLabs' LabExpert, those system managers can re-install software in a number of machines without leaving the LabExpert console.

LabExpert uses Caldera's OpenDOS (formerly Novell DOS 7.0) to create a maintenance partition on each system. The partition can be as small as 4MB or as large as desired, and can contain minimal software or master images for installation. The maintenance-partition software connects to a server, checks for installations to be done, and unloads and continues the normal booting for the software on the other partition.

My testing, booting, connecting, checking for work, and unloading took about 10 to 15 seconds, a very small increase in boot time. When the regular OS is running, all traces of OpenDOS are gone, so the regular OS operates normally.

The console program allows the system manager to observe the PCs and decide which ones will be upgraded or have specific programs run on them. Software is provided to reboot DOS, Windows 95, or Windows NT platforms upon request. Though the console is nicely laid out, the DOS operations moving software is not entirely elegant.

If you are a system manager in charge of a test lab or classroom, you shouldn't have any trouble learning how to save PC registries for later upgrades, or have PCs perform sequences of operations, such as changing OSes, updating their registries, and then being ready for work. The manuals cover the steps well, but the setup is a bit involved.

Once setup is completed, the steps can be triggered for a PC, a group of PCs, or an entire network with just a few mouse clicks. KeyLabs' ImageBlaster Pro is bundled with LabExpert, so updates can be done using that product's broadcast technology.

I don't have enough PCs at my test LAN to time the upgrade of a classroom, but KeyLabs says that a classroom can be changed from one OS to another and be ready for use in 10 to 20 minutes.

■ *KeyLabs Inc., Provo, Utah; 801-377-5484; fax: (801) 377-5439; info@keylabs.com; http://www.keylabs.com; 100 nodes: $6,500.*

— Mike Avery

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SPA

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JetAdmin

Continued from page 62C

monitored, and possibly managed, depending on the printer and the SNMP controls available to it. HP officials said that scanners will also be supported by the time Web JetAdmin 3.0 ships, although this functionality was not available in this beta release.

One of Web JetAdmin 3.0's more noticeable improvements is the expanded auto-discovery capability. Using this feature, the Web server locates all JetDirect devices on the network and queries them for printer information.

The printer status and details are returned to the user in one of four formats: as a graphical map of the network, or sorted by printer type, function, or capability. If a new device appears on the network, or if an existing device's status changes, this is reflected in the Web browser via the Web server's use of Java.

Once you have located the printers you wish to manage, you can modify them one at a time or use a new batch configuration option. This allows you to simultaneously modify the details of several printers. However, this option was not enabled in this beta version.

Although this version of Web JetAdmin is very powerful, it's not yet a replacement for Windows-based JetAdmin because it's limited to printers on JetAdmin servers.

Eric Hall is an independent industry consultant, providing research, analysis, and implementation services to end-users and vendors in the networking industry. You can reach him at ehall@ehsco.com.

USING WEB JETADMIN 3.0. *network users and managers can quickly view the status of printers on their network through a Web browser.*

Installation tools

Continued from page 62D

The hardware option

The ImageMasster 200P, Version 1.11, hardware solution is housed in a case about the size of a standard briefcase. It has disk and power connections for one master IDE and two slave IDE drives and connects to the parallel port of a Windows 95-based master computer. The link is used to set copy options, initiate copy, monitor progress, and get results.

The controlling program installs easily and has very attractive graphics, especially when compared with the DOS-based programs.

Installation was quick, but it was not painless. The first PC I used had some timing problems that kept me from being able to reliably communicate with the ImageMasster. This caused other problems. The program would not shut down correctly and the options page could not be set. A newer version of the software from the ICS home page correctly reported that the communications link was unreliable.

However, once configured, the ImageMasster was the fastest way to duplicate disks. Nevertheless, to use the product the computer you are working on will have to be opened, and the ImageMasster cannot be in two places at once— something that can be done easily with the software solutions on a LAN.

Innovative Systems strongly suggests that a system manager use considerable thought in creating a master image. The excellent advice on that company's Web site is worth heeding, even if you use the other products. Done correctly, the image can contain both the operating system and your standard load of installed software, saving hours when compared with conventional installation.

Mike Avery is a networking consultant in Beaumont, Texas. You can reach him at mavery@mail.otherwhen.com.

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Pondering the pork problem leads to more greasy puns

THE PROLIFERATION of pork puns directed at Earthlink in our Aug. 25 column drew the ire of more than a few ISP managers who felt that our efforts were a little "ham-handed" in their own right.

For them, the spam problem is more like an enormous state-fair-sized hog than "a few strips of bacon," as we put it. The volume of mail is so tremendous that in many cases it can overwhelm servers and cause service outages for everyone — spammers or not.

One reader told us that as much as half of the mail hitting his servers is from bogus domains or of otherwise suspect origin. Another told us of regular mail bombs containing hundreds of thousands of pieces. A third said spammers recently hijacked his server to the tune of 4 million messages.

(We couldn't escape the irony that a single Loose Cables item on e-mail overload generated a small flood of replies to our own inboxes.)

So, should Earthlink be lauded for taking action against a malicious horde or chastised for denying service to paying customers? Perhaps both.

We stand by our assertion that the practice of flatly refusing to relay e-mail is a major hindrance to truly mobile messaging. But other than roasting a piglet and jamming an apple in his mouth, what will solve the spam problem?

Some respondents pointed out that Mindspring's Spaminator service we mentioned works only with a user's inbox: It doesn't protect an ISP's mail servers.

However, several readers who responded to our hog-calling tell us they have developed inbound filters based on the same principles as the Spaminator. Of course, this is a lot of work for cash- and time-strapped ISPs, and devious spammers are already rooting their way around some of the filters like insatiable sows.

A common thread in all the replies was a belief that market principles could eventually lead to a solution. If consumers stop responding to junk mail — even one piece out of a thousand — the profit would be sucked out of the whole rancid industry, sort of like liposuction for the Internet. We won't hold our breath. Let us know if you have additional ideas, and we'll keep our eyes open for other ways to fight the fat. — *J.S.*

RAT of the week

Given the christening last week of Intel's newest silicon baby, we thought it would be a good time to get up close and personal with our resident Tillamook guru and RAT (Reviews and Testing) analyst, Andre Kvitka. Check out his analysis of the 0.25-micron technology behind the less-than-catchy name in last week's issue of *InfoWorld*. (See Product Reviews, Sept. 8, page 113.)

Although he still had Mother Russia's milk on his upper lip at the time, Andre remembers when one micron was the supposed limit of chip miniaturization.

"Why do we act surprised when these 'unbreakable' barriers are broken?" he wonders.

On the success of the Tillamook: "It'll do just fine," Andre says. "Like we have a choice."

Perhaps more than any other lab rat, Andre will test through pain. He's benchmarked and battery-tested with black eyes and a concussion, but it wasn't an exploding notebook that walloped him.

"Real men play ice hockey," he regularly reminds us. Despite this unfortunate tendency to leave the lab and exercise, Andre really does think technology is fun — in short, sweet doses though. As he puts it: "You can't eat ice cream all the time." — *C.B.*

Our Cable guys this week were Chip Brookshaw, and Joel Scambray. Had enough pig puns by now? Better yet, got any others? Let us know at loose_cables@infoworld.com.

MCI and BT take on telco thieves

■ SHERIFF beats telecommunications fraud by using expert system software

By Jackie Poole

INROADS BEING MADE by MCI and British Telecom (BT) to combat fraud in the telephone network could have future applications within a number of other markets, including cellular services, Internet services, the credit card industry, trading, health care, and other environments that rely on real-time transactions.

This month, MCI and BT announced a second-generation fraud-control application, known as SHERIFF, which stands for Statistical Heuristic Engine to Reliably and Intelligently Fight Fraud.

The companies' joint development efforts have been bent on improving MCI's proprietary Detect application. SHERIFF will augment MCI Detect to include more discriminating fraud-detection mechanisms, which are expected to reduce the number of false alarms.

To that end, MCI worked with fraud-control analysts, mapping out their techniques and actions in order to construct an expert system, according to John Gavin, director of fraud and customer management systems at MCI, in Colorado Springs, Colo.

With the current implementation, MCI will be able to reduce staff, filter out more false alarms, and prioritize the real ones.

In turn, fraud activity will be shut down more quickly and MCI will have to issue fewer reimbursements to fraud victims.

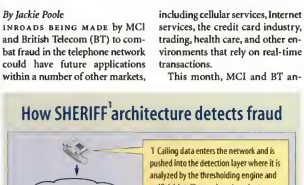
One industry analyst applauded the companies' efforts.

"MCI and BT have taken conventional linear thresholding and bumped it up a level using their own network technology to beat the more clever of the crooks — and they've done a pretty good job," said Rob Rich, an analyst at the Yankee Group, in Boston.

MCI plans to deploy SHERIFF during the first quarter of 1998, with BT to follow in the third quarter. It will provide the systems to strategic partners and alliance members in 1998.

MCI Communications Corp., in Washington, is at http://www.mci.com. British Telecommunications Plc., in London, is at http://www.bt.com.

How SHERIFF[1] architecture detects fraud



1 Statistical Heuristic Engine to Reliably and Intelligently Fight Fraud

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REGULATORY ROUNDUP

Here are a couple of regulatory news bytes from Washington

WASHINGTON The Federal Communications Commission recently approved a plan to **lower the cap on charges** imposed by international carriers on U.S. carriers for **overseas traffic.** (See related article, page 65.)

The FCC said it plans to set lower "benchmarks" on **international settlement rates,** citing the United State's **settlement deficit last year of $5.4 billion.**

The plan is slated to **take effect on Jan. 1, 1998,** and according to the FCC, if any overseas carrier does not agree to the rates, the FCC could encourage U.S. carriers not to pay settlement charges or to **stop sending traffic to that country.**

The FCC has extended the transition period for rates in developing countries to **five years from the date the order takes effect,** while the most developed countries are expected to comply **within one year** of the order taking effect.

WASHINGTON Bell Atlantic and AT&T signed a **local interconnection and resale agreement** for service in the Washington area. The regional Bell operating company is working to meet the **requirements of the Telecommunications Act,** and once the FCC determines that the company has met the requirements, it will be able to offer long-distance service to its customers. To that end, Bell Atlantic has already moved swiftly into **more than 260 interconnection agreements.** The deal with AT&T allows it to offer local service to customers by reselling Bell Atlantic's local service, repackaging its network elements, or **interconnecting AT&T's facilities to Bell Atlantic's.**

Wind River takes digital-signal processing to the mainstream

By Andy Santoni

AIMING TO HELP telecommunications, multimedia, and image-processing-equipment designers bring products to market more quickly and at lower cost, Wind River Systems last week introduced a software-development suite that gives digital signal processor (DSP) implementers tools such as those available for general-purpose microprocessors and embedded microcontrollers.

Tornado for DSP integrates application-development software into a graphical suite that can cut design time by weeks or months, said David Larrimore, vice president of marketing at Wind River. In contrast, today's design engineers have to "cobble together a system," frequently using parts that are proprietary and difficult to support, he said.

"There are bits and pieces available today," Larrimore said, noting that these tools can be difficult to use and support.

"Time to market is absolutely critical," agreed Charlie Ashton, manager of DSP tools at Motorola Semiconductor Products sector, in Austin, Texas. The first version of Tornado for DSP supports Motorola's DSP56300 family of processors.

Tornado "will enable major productivity gains for developers of DSP56300 software," Ashton said.

The design environment will also allow engineers to add features such as voice-mail messaging and router and switch capabilities to their products, Larrimore said.

During the next few months, Wind River Systems will announce support for other DSP types.

Wind River Systems Inc., in Alameda, Calif., is at (510) 748-4100 or http://www.wrs.com/.

TORNADO *is intended to boost productivity for people designing DSPs.*

PIPELINE

ANNOUNCED

The Global Chipcard Alliance announced that three of its members, US West, GTE, and Bell Canada, will jointly provide service for their North American smart-card users. The US West Telecard, GTE Smart Card, and Canadian Bell QuickChange/LaPruce Card are stored value cards with an integrated circuit chip and can be used in designated pay phones. The interoperability agreement will affect all Northern Telecom Millennium phones, which will be located in US West's, GTE's, and Bell Canada's service areas, by mid-1998. US West Communications Inc.: http://www.uswest.com; Bell Canada International Inc.: http://www.bell.ca; GTE Corp.: http://www.gte.com.

SHIPPING

NETSPEED is shipping full-production Asymmetric Digital Subscriber Line (ADSL) products with support for encapsulated Point to Point Protocol over ATM. The end-to-end product line for customer-premise and telephone-company central-office equipment follows plans outlined by Microsoft on the Interoperable End-to-End Broadband Service Architecture for ADSL, which allows users to implement ADSL without altering their existing IP transport system. All the customer-premise equipment has been developed to support multiple concurrent services from ISPs, corporate virtual private networks, or content providers from a single device. New products include the ATM-based LoopRunner ADSLAM, which terminates as many as 560 users, for the central office; and FireRunner 100, an extranet authentication router, for content providers. Customer-premise equipment includes the SpeedRunner 202, which is priced at $1,295, the SpeedRunner 300 at $8,995, and the HomeRunner at $795. NetSpeed Inc.: (800) 550-2375; http://www.netspeed.com.

Deutsche Telekom signs interconnect agreement with Isis

By Margret Johnston

DEUTSCHE TELEKOM has announced the signing of a third interconnect agreement with a private telecommunications company, which plans to enter the fully liberalized German telephone services market next year.

But Deutsche Telekom's new partner, Dusseldorf-based Isis Multimedia Net GmbH, is relatively small, and one analyst said it had little bearing on the status of negotiations on other more contentious interconnect contracts with larger players.

Isis signed the contract covering access to the public telecommunications network two weeks ago, a representative for Isis confirmed. The contract covers the financial as well as technical aspects of the interconnection, making possible an exchange of traffic between the networks of the two telecommunications companies.

Financial terms of the access accord were not disclosed.

Isis Multimedia Net was founded by the city of Dusseldorf and Westdeutsche Landesbank in 1994. It offers corporate telephony, LAN, and Internet-access services, and operates the city's fiber-optic network. It plans to enter the liberalized market as a full-service carrier on Jan. 1, 1998, the representative said.

▸ Deutsche Telekom has already signed agreements with WorldCom's German subsidiary and Tele Danmark A/S's German affiliate.

The signing of the agreement with a German city network operator is proof of Deutsche Telekom's willingness to reach agreements with its competitors that satisfy the interests of both sides without involving regulatory authorities, said Herbert May, a member of Deutsche Telekom's board of directors, in a statement.

Three rival telecommunications companies have been unable to reach interconnection agreements with Deutsche Telekom and have complained to government regulators about its access offer. Deutsche Telekom has said it would appeal a preliminary administrative court ruling issued last month in favor of the three companies.

Despite the ruling and Deutsche Telekom's claims that it is negotiating fairly, Alexis Lagoudakis, a consultant for IDC Germany, in Kronberg, said the government has done very little to ensure competition in the liberalized market.

"We believe that Deutsche Telekom is being favored by the German regulators," Lagoudakis said. "It is my firm belief that actually the German government is protecting Deutsche Telekom instead of protecting the market."

For example, the government approved Deutsche Telekom's plan to reduce prices charged to businesses, without passing any savings to private customers, Lagoudakis said.

Lagoudakis also said that interconnection charges would be very high and he noted that the three companies that have signed — out of the more than 20 that are negotiating — are relatively small.

"They have not done anything with the big ones," Lagoudakis said. "I'm sure there is still going to be lots of friction before they are signed."

In other European news, Mannesmann AG and Olivetti SpA announced a joint venture that will group the Italian company's fixed and wireless telecommunications interests in one organization that will receive a financial infusion from an additional stock offering and a new loan. Deutsche Telekom is rumored to be interested in acquiring Olivetti SpA.

Deutsche Telekom AG, in Bonn, Germany, can be reached at 49 (228) 181 4949.

Margret Johnston is a Munich, Germany, correspondent for the IDG News Service, an InfoWorld *affiliate.*

Japanese telecom giant inks deal with AT&T to cut settlement rates by 1998

By Rob Guth

JAPAN'S LARGEST international telecommunications carrier Kokusai Denshin Denwa (KDD) has signed a deal with AT&T to cut international settlement rates by April of next year, according to a KDD representative.

The representative added that KDD is also holding talks with other U.S. carriers including MCI and Sprint in the hope of signing agreements similar to the AT&T deal, hence lowering international settlement rates.

Under the agreement with AT&T, charges for calls from the United States to Japan would drop 40 percent to about 25 cents per minute, while those flowing in the opposite direction will fall 70 percent to about 13 cents per minute, according to the representative.

Although some analysts say the deal with AT&T indicates KDD's willingness to lower rates, the KDD representative denied any such inference.

The disclosure of the AT&T deal and talks with other U.S. telecommunications providers come amid a row between Japan and the U.S. Federal Communications Commission over the settlement rates, which are the fees international carriers charge each other for connections needed to complete overseas calls.

Early last month, the FCC pushed forward a plan to cut the rates, saying that lowered rates would both benefit consumers worldwide and jump-start telecommunications competition. KDD initially opposed the FCC plan, saying that rate determination should be left to the private sector and disclosing its intention to appeal the FCC move in a U.S. court.

The FCC said it was not surprised by KDD's legal challenge. According to the FCC, U.S. carriers pay out more than $5 billion in settlement rates per year.

▸ **KDD America sells an Internet access service called JapanNet that provides 45Mbps links between the United States and Japan.**

"Any effort to reform the system which is based upon enormously inflated rates for termination overseas is going to meet with resistance," said Peter Cowhey, chief of the FCC's international bureau.

Cowhey said the FCC, which first announced its intention to seek lowered caps on settlement rates last year, has been moved to act both to protect U.S. consumers and to fuel competition in global telecommunications.

The amount of the FCC's proposed settlement-rate caps depends on whether it considers countries "high income" or "low income." Currently, Japan charges carriers roughly 44 cents per minute to terminate calls in Japan, by far the highest settlement rate for an industrialized nation, Cowhey said. The FCC proposal would bring that rate down to 15 cents per minute.

Not all non-U.S. carriers object to the lowered rate. For example, British Telecom already charges carriers 15 cents per minute for terminating their international calls in its territory. Moreover, at least one U.S. carrier was not entirely enthusiastic about the FCC's actions.

Though MCI spokeswoman Robin Halter declined to comment specifically on the FCC's proposals, she did suggest that the FCC's involvement "can be seen both ways" in terms of whether it helps or hurts MCI.

"We need to maintain good relationships with our foreign [carriers], so having the FCC antagonize" them isn't necessarily in MCI's best interest, even though MCI might benefit economically, Halter said.

Kokusai Denshin Denwa America Inc., in New York, is at (212) 702-3720.

Rob Guth is a Tokyo correspondent for the IDG News Service, an InfoWorld *affiliate. Additional reporting by IDG News Service correspondents Margret Johnston, in Munich, Germany, and Kristi Essick, in London.*

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ANNOUNCED

Lotus will integrate Verity's KeyView technology into its SmartSuite 97 line of personal productivity products. KeyView will enable SmartSuite 97 users to view Workpro, AmiPro, Lotus 1-2-3, and Freelance files without loading the applications, and it will let users look at non-Lotus file types, such as MS-Works, .TIF, bit map, and Windows Metafile. KeyView will be available for SmartSuite 97 for free in October from both Verity's and Lotus' Web sites. Verity Inc.: http://www.verity.com.

NETSCAPE COMMUNICATIONS and TREND MICRO have announced an anti-virus solution for Netscape Messaging Server 3.0. Trend Micro's InterScan VirusWall will operate on a separate server and act as a buffer between Messaging Server and the Internet gateway to protect against e-mail viruses. Pricing information was not yet available. Netscape Communications Corp.: http://home.netscape.com. Trend Micro Inc.: http://www.antivirus.com.

NETSCAPE will bundle HEADSPACE's Beatnik plug-in into the final versions of Netscape Communicator Internet Access Edition and Netscape Communicator Deluxe Edition. The Beatnik plug-in manages playback of Web audio formats such as RMF, MIDI, MOD, AIFF, WAV and AU. Netscape Communications Corp.: http://home.netscape.com. Headspace Inc.: http://www.headspace.com.

SHIPPING

MUSTANG SOFTWARE is shipping Web Essentials Internet Message Center, a corporate application that handles inbound Internet e-mail messages addressed to aliases or unknown individuals. The Message Center works with most e-mail applications and on most operating systems. The application is priced at $1,500 per server license. Mustang Software Inc.: http://www.mustang.com.

Vendors to tackle Web directories

■ Aziza, Mustang Software offer tools to help manage unwieldy file directories

By Dana Gardner

VENDORS ARE LINING up to offer database-driven add-on tools that manage the often explosive growth of pages, users, and servers at burgeoning Web sites and enterprise intranets.

On the high end, Aziza next week at the Intranet+Extranet Conference and Expo in San Francisco will unveil Aziza Enterprise Web Manager, an Objectivity database-driven system that converts FTP files and HTML documents into taggable objects.

Using a similar theme but with a more modest database, Mustang Software early next month will deliver FileCenter, a cataloging and indexing tool priced at $1,000, which is designed exclusively for Microsoft's Internet Information Server (IIS) on Windows NT.

Now in beta testing, FileCenter stores information about an FTP file, including file name, title, description, and HTTP location in an Open Database Connectivity access database. The program uses Microsoft's Index Server and IIS to index the document's words to create an indexing engine within the Web site.

Analysts agree that sites and intranets more often face the challenges of unwieldy file directories.

"I'd have to say [file directories] are a major problem," said Chris LeTocq, an analyst at Dataquest, in San Jose, Calif. "Organizing the stuff, and change management, is a substantial problem."

In addition to offering administrative control via a Java-enabled browser, Aziza's Enterprise Web Manager allows many authors to edit Web site pages, keeping the changes and associated links live and accurate.

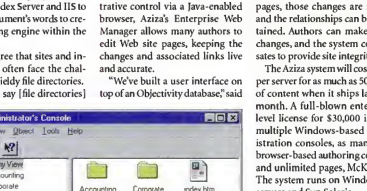
"We've built a user interface on top of an Objectivity database," said David McKay, director of product marketing at Aziza, a division of Objectivity Inc. "You point Aziza to a server via the URL and it goes in and grabs files as independent objects. No matter what you do to the pages, those changes are marked and the relationships can be maintained. Authors can make lots of changes, and the system compensates to provide site integrity."

The Aziza system will cost $8,000 per server for as much as 500 pages of content when it ships later this month. A full-blown enterprise-level license for $30,000 includes multiple Windows-based administration consoles, as many as 50 browser-based authoring consoles, and unlimited pages, McKay said. The system runs on Windows NT servers and Sun Solaris.

Aziza is in discussions with both Netscape and Microsoft to bundle its tool with off-the-shelf servers, McKay said.

Aziza, in Mountain View, Calif., can be reached at (415) 254-7100 or http://www.aziza.com.

Mustang Software Inc., in Bakersfield, Calif., can be reached at (805) 873-2500 or http://www.mustang.com.



AZIZA'S ENTERPRISE WEB MANAGER *provides an interface and Objectivity database to add a layer of management to file-based Web servers.*

Value-added services over the Internet expected to flourish

By Joanne Tiuffe

HALF OF ALL telephony will be carried over the Internet by the year 2010 because of new services that will accompany voice calls, according to Vinton Cerf, vice president of Internet Architecture and Engineering at MCI Communications.

For MCI, such value-added service will represent an important source of income, beyond its expected annual revenues of $2 billion by the year 2000 from pure data transmission and services over the Internet, Cerf said during an interview in Geneva at Telecom Interactive.

MCI's faith in the revenue stream is borne out by its involvement with Progressive Networks' RealNetwork, a service designed to build a mass-market medium on the Internet offering enhanced audio and video multicasting.

"Multicasting services will turn out to be interesting moneymakers," Cerf said.

Other sources of income for MCI will be Web hosting and the building of intranets, soon to be under the wing of Concert. However, MCI has not yet explored all of the different services from which it can spin money.

"I must admit, I don't think the company has worked its way through higher value-added services," Cerf said. Cerf didn't provide any specific examples but indicated that Concert is forming a strategic group to look at a range of value-added service possibilities that may be put into place through partnerships.

And although the growth of MCI's business over the Internet poses technical challenges, such as keeping up with demand and adapting MCI's network to service real-time traffic, Cerf said that managing the Internet policy question is a much harder problem to tackle.

Cerf favors explaining the nature of the Internet and the ramifications it can have on a country's economy to legislators around the world, rather than establishing a formal set of Internet regulations.

MCI Communications Corp., in Washington, can be reached at (202) 872-1600 or http://www.mci.com/.

Joanne Tiuffe is a Paris correspondent for the IDG News Service, an InfoWorld *affiliate.*

> **The Voice over IP group which last met in March is part of the International Telecommunications Union.**

THE WEB HOTLIST

Web sites worth checking out

1. **Network Computing** http://nc.oracle.com
   Software monolith Oracle provides background information on NCs. Get data on application development using Oracle's Network Computing Architecture or browse enterprise case studies in the Customer Stories area.

2. **International Network Services** http://www.ins.com
   This enterprise network services company offers a well-designed site. The Network Consulting section includes white papers and articles on subjects such as building networks, network security, and service-level agreements.

3. **Acxiom** http://www.acxiom.com
   Acxiom's site focuses on decision-support and information services. The Case-in-Point reference section contains newsletters, case studies, and reports on management topics, such as data mining and selection of database systems.

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❑ 7 - 14 days ❑ 31 - 60 days

4. How do you prefer the vendors to contact you?
❑ Mail ❑ Phone ❑ Fax ❑ E-mail

SYSTEMS VENDORS

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6. Select vendors: (Write in code)			
(A) Acer (D) Dell (G) Micron (J) Toshiba			
(B) ALR (E) Gateway (H) NEC (K) Umax			
(C) AST (F) IBM PC Co. (I) Premio			
7. How many units are you planning on purchasing?			
8. What CPU do you want installed?			
9. How much RAM do you want installed?			
10. What type of hard drives do you want installed? (A) SCSI (B) IDE (C) Other			
11. What capacity hard drives do you want installed?			
12. What type of video do you want installed? (A) SVGA (B) VGA (C) Active Matrix VGA (D) Passive Matrix VGA (E) Other			
13. What peripheral devices do you want installed? (A) Floppy (B) CD ROM (C) SCSI (D) Tape Backup (E) Sound Cards (F) Other			
14. What operating systems do you want installed? (A) MSDOS (B) Windows (C) Windows 95 (D) Windows NT (E) OS/2 Warp (F) NetWare (G) UNIX			
15. Other specifications			

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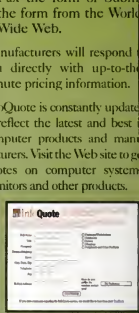

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MICRON ELECTRONICS™
THINKING OUT OF THE BOX

IBM gears up servers for Internet commerce

By Ed Scannell

IBM WILL SHORE UP its Internet-commerce strategy with enhancements to several of its products designed to make them run faster and more reliably and to better integrate them with a range of different networks.

At the Internet Commerce Exposition in Los Angeles last week, IBM showed off its eNetwork Communications Server, which features new TCP/IP software that improves the company's S/390 Web serving performance so that it can now support four times as many connections per second than its previous capacity.

IBM has added new functions to its line of S/390 servers so they can support its line of Network Station network computers, which allow desktop users to store their applications and data on a server and download them on demand.

Big Blue also announced ways to more easily access information from a Web browser through its Java-based Host On Demand, which can leverage existing legacy applications. Host On Demand requires no reprogramming by users to make it work with those existing applications.

Version 2.0 of Host on Demand, expected to ship by the end of the month, features a Host Access Class Library API that enables customizable user interfaces and more sophisticated access to applications and data specifically tailored for an individual's job needs. Version 2.0 costs $199 per concurrent user.

Also updated is IBM's Communications Server software for the S/390, Windows NT, and OS/2 Warp platforms. New features include data-compression capabilities and other technologies to deliver faster transmission speeds, reducing overall costs of a network.

With Personal Communications 4.2 for Windows 95 and Windows NT, IBM extended its reach by exploiting a number of Microsoft technologies, including ActiveX, OLE, and ODBC. The company also made the product compliant with the VT 52/100/220 standards.

Company officials said last week that Version 4.2 has been specifically designed for Microsoft's BackOffice suite, lending further credence to IBM's support for NT.

Expected to be available by the end of this month, Personal Communications 4.2 will be priced at $329 for the base product and $279 for each additional license.

IBM upgraded its eNetwork Personal Communications software, which better enables users to access enterprise-level data, so it can be more easily integrated with desktop users' information. For example, spreadsheets and word processors can be used in tandem with the Personal Communications package to access and look at personnel records stored on an S/390 mainframe server.

IBM announced it has added support for wireless devices used by police and other public safety officials. It is also supporting ISDN 30 lines in Europe, which provide as much as 15 times the performance improvement over Basic Rate ISDN networks, company officials said.

The eNetwork Wireless family of products, formerly ARTour, is designed to provide mobile users with access to existing IP-based applications over wireless and dial-up networks. It is now in beta testing and will be generally available this fall.

More information can be obtained about these products at http://www.software.ibm.com/.

IBM, in Armonk, N.Y., can be reached at http://www.ibm.com/.

Progressive opens online streaming media store

■ Products include developer tools

By Bob Trott

PROGRESSIVE NETWORKS has created a Web site dedicated to selling streaming media products online, the company announced last week at the Internet Commerce Expo, in Los Angeles.

Macromedia, mBed, Syntrillum, and Insync are among the companies offering products for sale via instant download at the online store, http://www.realstore.com/, according to Maria Cantwell, senio vice president of consumer system and 1-commerce at Progressiv Networks.

Customers can buy the softwar online and download it instantly o have it shipped to them on CD-ROM, Cantwell said.

Progressive Networks' offering include content developer tools consumer entertainment products and intranet-based computer traini ing products.

"We certainly have a market her for people interested in streaming media products, whether they're consumers or content developer who want more tools to build ever greater streaming media Web sites," Cantwell said. "We want to take tha market segment and open it up t some of our third-party partners."

The site also features demonstrations of Progressive Networks RealAudio and RealVideo streaming technologies.

Progressive Networks Inc., i Seattle, can be reached at http:// www.real.com.

KEYNOTEBUSINESS40

Internet Performance Index

Week ending Sept. 5

19.44

Fastest site 4.7
Slowest site 113.0

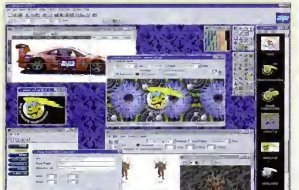
Top five sites
Merrill Lynch 4.7
Charles Schwab 5.3
Federal Express 5.6
UUNet 6.2
AltaVista 6.3

All numbers represent time in seconds

The index measures the performance of 40 business-related Web sites. The numbers represent the average time it takes to download a home page. The lower the number, the better the responsiveness. For more information, choose the InfoWorld Print button on *InfoWorld Electric* at http://www.infoworld.com. SOURCE: KEYNOTE SYSTEMS (http://www.keynote.com)

PRODUCT SPOTLIGHT

WEB PAINTING: COLOR SITES WITH WEB 3



SPG's ColorWorks:Web 3 for Windows 95 and Windows NT is a Web-enabled version of the company's 32-bit paint program. Web 3 costs $99 and can be ordered from SPG's Web site. SPG Inc., in Miami Lakes, Fla., is at http://www.spg-net.com.

SiteMinder 2.0 Web security manager

Netegrity upgrades Web security

By Matthew Nelson

NETEGRITY LAST WEEK released SiteMinder 2.0, an enhanced Web security management product that combines SiteMinder Security Manager with SiteMinder Web Agent to deploy secure mission-critical intranet and extranet applications, according to officials at the company.

SiteMinder authorizes individual users for access to intranet and extranet systems, instead of restricting certain areas of content, according to Jim Rosen, vice president of marketing for Netegrity.

"For this release of the product we can authorize people with names and passwords in the [Windows] NT domain," Rosen said. "We create security policy out of a set of rules and bind that to the users."

SiteMinder supports multiple authentication options, offering different security methods for different processes.

For example, business partners can be authenticated with names and passwords, while employees who are granted access to more sensitive corporate information can then be authenticated with smart cards.

The application comes as a shrink-wrapped product, but it can be used as a development platform, according to Rosen.

"We give Web application developers the ability to provide very fine-grain security control," Rosen said.

Some initial customers appreciate the additional security SiteMinder provides for their intranets and extranets.

"Were moving beyond just securing the remote-access part of our network," said Dave Pearson, manager of new technology for *The Boston Globe*, in Boston. "I'm not limited now to the server security mechanism that you would usually use."

However, Pearson doesn't think the application is perfect quite yet.

"The one downside is that it doesn't use an external directory," Pearson said. "As we build security, we also have to import users and the definition of who they are. I would like it to use an external directory so I wouldn't have to do that."

One analyst believes SiteMinder's greatest strengths lie within its development platform capability.

"I'm not shooting rockets off about this product, but if they get the right channel, then I think that enterprise developers, systems integrators, and VARs will latch on to it," said Vernon Keenan, a director at Zona Research, in Redwood City, Calif. "I see it as a programmer's toolkit with the user interface that makes it easy to administer."

SiteMinder 2.0 is available now; pricing for the SiteMinder Server software starts at $3,995 for 300 users, and the Netegrity Web Agent costs $595 per Web server.

Netegrity Inc., in Waltham, Mass., can be reached at (617) 890-1700 or http://www.netegrity.com.

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THIS WEEK

- SuperTCP Suite 3.0 ..... 72D
- Concept Explorer Pro 1.0.6 ..... 72F
- Inside the Firewall, by Dave Taylor 72H

UNIQUE SEEK

Doing research on the Web has one significant shortcoming: It's too hard to sort out relevant documents from the mass of information you retrieve. Concept Explorer Pro 1.0.6 has a unique solution. It extracts keywords and concepts from documents on your system, then uses them to refine your searches. In conjunction with an existing knowledge base, this tool can help you optimize your Internet searches. How well does it work? Turn to page 72F for our review of Concept Explorer Pro 1.0.6.

TESTING TOOL

If you're developing intranet applications using Java, part of your quality assurance and testing should include application profiling, which identifies performance problems in your programs. One way to handle application profiling is with Visual Quantify (reviewed, right). This tool scans Java and C++ programs as they execute and produces reports you can use to locate — and optimize — overly time-consuming functions and even lines of code.

HOW WE REVIEW

Intranet World reviews examine new products, focusing on their usability, features, and suitability to task. Our expert reviewers rate shipping products on a scale of cold to hot. The authors do not employ the extensive analyses used in Comparisons, so their conclusions may be different.

TALK BACK

Questions, comments, kudos? Send a message to the editor at dylan@infoworld.com. Please include "Talk Back" on the subject line. To reach a staff author, use the format firstname_lastname@infoworld.com.

▸ Web application development environment

Hahtsite: enterprise-class tool

By Gess Shankar Hahtsite 3.0, now in beta testing, improves on the robust rapid application development (RAD) features of prior releases. Built more like the traditional programmers' integrated development environment (IDE), Haht Software's Hahtsite 3.0 adds server-side Java programming, more application-generation wizards, and native database connectivity to its arsenal. Also included is a Software Development Kit that lets you extend Hahtsite's functionality by developing reusable Widgets.

BETA

The beta installation provides you with everything you need to start developing and testing, even on a stand-alone Windows NT or Windows 95 system. It comes complete with a Web server (trial version of Quarterdeck Webstar), a developer's version of Haht Software's Application Server, and a helpful sample Hahtsite intranet/Internet application with tutorial pages.

THE BOTTOM LINE

Hahtsite 3.0, beta

This Internet integrated development environment (IDE) now features server-side Java and native database connectivity. The new rapid application development enhancements and revamped Application Server make it a top-class development and deployment environment.

Pros: Comprehensive set of Web-object-creation tools included in the IDE; integration with popular source control systems; server-side Java support; includes Hahttalk Basic, which uses Java classes as native objects; widgets and wizards for data access without programming; excellent site-management features; Application Server that supports distributed architecture.

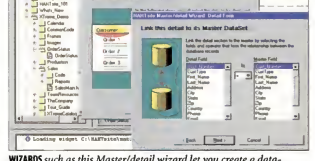
Cons: Some beta bugs; and unimplemented features.

Haht Software Inc., *Raleigh, N.C.; (888) 438-4248 (toll-free), (919) 786-5100; fax: (919) 786-5250; http://www.haht.com.*

Price: *Hahtsite IDE: $1,995 per user; Hahtsite integrated Publisher (IDE without programming capabilities): $695 per server; Application Server: $4,995 per CPU (Windows NT), $6,995 per CPU (Sun Solaris, HP-UX, AIX); Distributed Application Server: $7,495 per CPU (NT), $9,995 per CPU (Sun Solaris, HP-UX, AIX).*

Platforms: *Windows NT or Windows 95 for development; Windows NT, Sun Solaris, HP-UX, and AIX for deployment.*

Ship date: *This month.*



WIZARDS *such as this Master/detail wizard let you create a data-driven Web application without programming.*

And to make using Java simpler on the programming side, Hahtalk Basic has been enhanced so that programmers can access Java classes as native objects, much like creating and using OLE/ActiveX objects. You store Java source and class files in the project's folder tree, and the IDE handles the maintenance and compilation of Java components as part of the

▸ **HAHTSITE** *page 72D*

▸ Application-profiling tool

Visual Quantify pinpoints performance problems

By Maggie Biggs

INTRANET SOFTWARE development should include a quality-assurance methodology with application performance testing. Toward that end, Pure Atria (recently acquired by Rational Software) just released Visual Quantify, a performance measurement tool for analyzing Java and C++ applications and components.

Although Visual Quantify's collection capabilities are limited to Windows NT, Visual C++, and Microsoft's Java Virtual Machine (JVM), the product delivers useful metrics in a highly graphical way, making identification of performance issues a breeze.

Visual Quantify is on par with TracePoint Technology's HiProf application profiler when it comes to pinpointing performance problems within Visual C++ applications. However, unlike HiProf, Visual Quantify supports measurements of Java applications.

I found Visual Quantify easy to install and set up, although the product installation did recommend that I raise my virtual memory setting. It is probably best to let Windows manage the virtual memory when using Visual Quantify.

How it works

Visual Quantify handles the collection of performance data differently depending on whether your application is Visual C++ or Java. I began by looking at some Visual C++ applications that I had and found that I didn't need a special

▸ **VISUAL** *page 72G*

▸TCP/IP application suite

SuperTCP Suite 3.0 serves up a smorgasbord of tools

■ Components provide key TCP/IP apps for accessing legacy and Unix systems

By Gess Shankar

ALTHOUGH WINDOWS 95 and Windows NT come with robust TCP/IP stacks, these operating systems still lack the wealth of applications familiar and essential to Unix users and administrators. Comprehensive TCP/IP tool suites, such as Frontier Technologies' SuperTCP Suite 3.0, fill the need of Windows network users communicating with Unix and other hosts via TCP/IP.

SuperTCP Suite 3.0 packs a large number of servers, clients, and utilities into one package and adds punch by including useful Web applications. Because it's available for all Windows platforms, SuperTCP Suite can help you integrate legacy and Unix-based networks with all your Windows desktops.

Installation gets intelligent

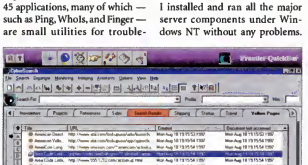
What impressed me most when installing this formidable array of programs was the flexibility of the installation process, which has been designed with enterprise deployment in mind. The single CD-ROM contains versions of the product for all platforms, and the "intelligent installation" detects the operating system and installs only the applicable components.

Besides the custom installation, in which you select the components you wish to install, some preconfigured installations for home users, mobile users, and LAN users simplify installation and configuration appropriate to the user's needs. Wizards automatically run for fine-tuning the applications. Finally, batch installations based on scripted answer files and server-based routines will help administrators who need to configure a large number of networked systems.

A full toolbox

SuperTCP Suite includes more than 45 applications, many of which — such as Ping, Whois, and Finger — are small utilities for troubleshooting and administering TCP/IP. Major components for internetworking with Unix include an X-Window server (SuperX) and a Network File Systems server and client (SuperNFS).

Among SuperTCP Suite's applications to enhance information management in intranets are the Network News Transport Protocol (NNTP)-based News Server and the CyberSearch indexing and retrieval tool.



FEATURE-RICH CYBERSEARCH *makes search and retrieval a snap; the customizable QuickBar keeps tools organized and easy to launch.*

Easy-to-use configuration managers helped me set up and maintain components such as the FTP and news servers.

For example, when I installed the NNTP News Server, a wizard walked me through the creation of newsgroups, and the process was complete in a minute or two — a very simplified affair without having to set up scripts and create configuration files. I found, however, that the server was too simplified, because it would not let me specify where I wanted the newsgroup article database to be stored — a very important detail because this database can become quite large.

Installed as a Windows NT service, the News Server is available on start-up. A graphical News Server Manager makes managing the server and the news database a minor chore, and it's an easy way to set up departmental discussion groups and integrate relevant Usenet newsgroups if news feeds are available to the server.

Intranet users and administrators will really like SuperTCP Suite's CyberSearch indexing system. It can index information throughout your intranet from disparate sources, such as your Internet Server API-compliant Web server and News Server, and even workgroup content such as spreadsheets and word-processing documents in shared directories.

Running as a Windows NT service, the indexer does its job in real time, so your users — who access the index through the CyberSearch client — are always looking at current information.

When configuring CyberSearch to index my Web server, which contains multiple document roots on different virtual servers, the wizard presented me with a series of bare slashes ("/") without associating them with a directory or URL — forcing me to move to the wizard's next step to determine the URL and then back up if incorrect. Single-step URL selection would have removed this annoyance.

Client tools a click away

I loved the Frontier QuickBar, which is a floating toolbar for quickly launching the TCP/IP client tools. The GUI front ends to tools such as Ping make them very easy to use, even by novice users. You can also drop URLs and shortcuts on the toolbar for quick access, or drop them on the CyberSearch icon to add them to the searchable index — a great little feature.

Complementing CyberSearch is Tapestry, Frontier's browser, which can search and display content not only from the Web but also from older information archives such as Gopher and Archie. Although it's very competent in what it does, Tapestry is a generation behind in fast-evolving Web standards. To overcome this, CyberSearch includes the option to launch any browser.

CyberSearch can index legacy documents without converting them to HTML, and it can launch the associated application from any document's bookmark. Together, these features make it a powerful enterprise tool in corporations that have content created by a variety of applications.

SuperTCP Suite's capability to run on any Windows platform, including Windows 3.x, and its effective blend of traditional TCP/IP resources with the newer Web-application paradigm make it an eminently suitable TCP/IP suite for organizations with a mix of server and client platforms.

Gess Shankar can be reached at gess@earthchannel.com.

THE BOTTOM LINE

SuperTCP Suite 3.0

GOOD

Frontier Technologies SuperTCP Suite 3.0 for Windows integrates key TCP/IP applications for accessing legacy and Unix systems with an array of intranet and Internet tools and services, including Internet access and search engines.

Pros: All-inclusive set of tools; support for all Windows platforms; excellent installation features and options; drag-and-drop ease of use; feature-rich search client.

Cons: Some wizards cumbersome to use; lacks option to relocate disk storage used by the applications.

Frontier Technologies Corp., *Mequon, Wis.; (800) 929-3054, (414) 241-4555; fax: (414) 241-7084; info@frontier tech.com; http://www.frontiertech.com.*

Price: *$365*

Platforms: *Windows 3.x, Windows 95, Windows NT.*

Hahtsite

Continued from page 72C

publishing process.

You will like Hahtsite's flexible compiler options. For server applications, you can take advantage of the latest compilers, such as the one from JavaSoft's Java Development Kit (JDK) 1.1. But you may want to use the older JDK 1.0.2 for creating applets for compatibility with the current generation of browsers. By allowing you to specify the Java compiler and its option switches at the system, project, or source-file level, Hahtsite makes keeping in sync with fast-moving Java a manageable task.

The IDE's Java-aware editor with its syntax coloring lets you browse and patch Java source files in the project, but it is not designed for serious Java code development.

Today's intranets need Web applications that are data-driven, and Hahtsite's RAD features and wizards simplify and speed up code that taps into databases. The data set widget is a powerful component for creating user-friendly Web applications. I found the various wizards very intuitive and quite complete for creating forms and tabular data presentation without using any HTML. The SQL Assistant helps even novice developers by interactively building complex queries without delving into the SQL syntax details.

Hahtsite also sports a full-featured Report Wizard, which easily walked me through the creation of a detailed multipass report with group totals and summaries. The database connection manager and the data widgets shield you from the complexities of accessing disparate database engines.

Hahtsite 3.0 introduces vastly improved site-management capabilities. The beta version I tested had some glitches with how the sites were detected and initialized, but these should be corrected by release time. By configuring sites and subsites under each site, you can exercise fine control over where the Web components are published and how the transfer takes place.

Publishing a project compiles all the code, including Java source files and the static pages, and transfers them to multiple locations using the pre-configured transfer method (direct file copy, FTP, or HTTP). Once configured, complex sites containing multiple document trees, server-side code, and components such as ActiveX and Java applets can be set up and maintained with ease from the IDE.

Solidly based on widely used technologies and standards, such as Visual Basic, Java, and ODBC, Hahtsite 3.0 is shaping up to be the tool for creating the next generation of Web applications. And the much-improved Application Server scales up for enterprise class deployment, thanks to its cross-platform, distributed architecture.

Gess Shankar (gess@earthchannel .com) is an electronic-publishing and Web consultant and author.

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▸ Graphical Internet-query tool

Concept Explorer guides searches via analytical and intelligent queries

By Serg Koren

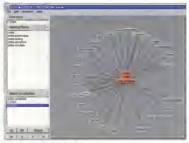
Most Internet-search tools process Web data to help you create intelligent queries or schedule queries. Concept Explorer Pro 1.0.6 takes a different angle by allowing you to analyze documents you are already working on in conjunction with your business research projects.

To use Concept Explorer, you first select documents on your local system that contain information dealing with the topic you wish to research. Concept Explorer then uses semantic data-mining techniques to analyze the documents and extract keywords and their relationships. This information is stored in a database that can be used to generate queries by entering starting keywords.

Concept Explorer displays the keywords you select, as well as keywords that have been linked to them, in a Web-like relationship view. (See screen shot.) You then form a query by selecting items in the relationship view that expose deeper relationships. Additional keywords can be typed in at any point.

Once you have chosen the keywords, you can prioritize their relationship by reordering the listed keywords in a separate pane on the screen. You then create the actual query by clicking a single button that launches your Web browser and displays a list of supported search engines.

Each search engine is queried individually via this page, which allows you to specify how broad or narrow the search should be, as well as the engine's supported options. As a helpful feature, this query form is an HTML page that can be distributed or saved for reuse.



CONCEPT EXPLORER *visually displays keyword relationships for focused queries.*

The searches return results that tend to be more focused and specific to the information you want instead of manually constructed search-engine queries. The flip side is that it is very easy to formulate a nonsense query if you aren't really sure of the underlying relationships among the concepts or the meaning of your starting data.

Concept Explorer's strength — allowing you to analyze your existing documents — is also its main weakness. A single document dealing with one subject probably won't expose meaningful relationships.

On the other hand, if you have a great number of detailed documents, Concept Explorer may expose some relationships you may not have been aware of within the documents.

Concept Explorer's inability to formulate queries using live Web-site data is another major disadvantage. The data you mine to form your initial queries has to reside locally and has to be in either text or HTML format. Support for standard document formats would give the product a broader usefulness.

Concept Explorer fills a niche by analyzing existing data in an easy-to-use manner that produces more precise Internet-search queries. However, the limited input formats supported and its inability to query live Web-site data may cause you to look elsewhere.

THE BOTTOM LINE

Concept Explorer Pro 1.0.6

HOT

Concept Explorer is a graphical tool for searching the Internet by generating intelligent search-engine queries.

COLD

Pros: Graphical, easy-to-use interface; produces accurate query results; exposes hidden relationships between concepts; uses your own documents as a starting point.

Cons: Requires locally held, pre-existing documents; only works with text and HTML documents; no way to simultaneously search all search engines.

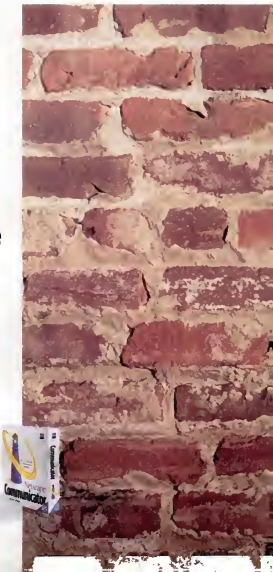
Knowledge Discovery Systems Inc., *Menlo Park, Calif.; (650) 327-9300; fax: (650) 327-9014; http://www.kdsystems.com.*

Price: *$150*

Platforms: *Windows 95, Windows NT 4.0.*

Serg Koren (serg@visualnewt.com) is an advisory analyst at Tandem Computers, in Philadelphia. He has worked with and programmed computers since 1979.

All other email and groupware



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Visual

Continued from page 72C

version of the programs to profile them. I simply started Visual Quantify, selected one of my executables, and ran the program inside the Visual Quantify environment.

For Visual C++ applications, Visual Quantify uses something called Object Code Insertion technology to collect performance measurements. This means that Visual Quantify doesn't require access to application source code.

Especially helpful were the flexible options I found in a Visual Quantify feature called PowerTune, because they let me customize how much data would be collected. I was able to select whether my entire application would be measured or just specific components.

PowerTune also let me select whether it would measure performance at the code-line or function level. And I could measure performance via counters or timers. These flexible options helped me pinpoint exactly where performance problems were found in my applications.

Java-profiling tools

For Java applications, Visual Quantify uses a slightly different approach, due to the nature of Java and the virtual machine. Because Java code is compiled and executed within the virtual machine, Visual Quantify gathers data for each byte code execution as the code is compiled within the virtual machine.

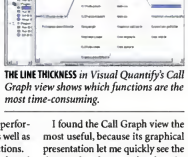
Visual Quantify's support for Java is limited to Microsoft's JVM, which is found in Internet Explorer 4.0, Preview 2, and later.

My tests with some Java applications showed that Visual Quantify measured performance for each function, as well as the base classes for the functions.

Also, Visual Quantify gathered data on the performance implications of object creation and garbage collection in my Java applications.

Identifying bottlenecks

Aside from collecting performance data — whether Visual C++ or Java — Visual Quantify does a great job of data presentation after measurements are completed. There are five views included in the product: Call Graph, Function List, Function Detail, Annotated Source, and the Run Summary.



THE LINE THICKNESS *in Visual Quantify's Call Graph view shows which functions are the most time-consuming.*

I found the Call Graph view the most useful, because its graphical presentation let me quickly see the degree of performance bottlenecks based upon the thickness of lines between components.

The Function List and Function Detail views were helpful for closely inspecting the performance of individual functions, and the Run Summary view displayed timing information for each thread in my application.

Some of my applications had debug and source-code information available. In these cases, the Annotated Source view provided valuable insight into performance-intensive areas of my applications. I simply gathered performance data at a code-line level, and this view then showed me how long each line took to execute, as well as the percentage of time each line used within the function.

Those who are developing applications in Windows NT environments with either Visual C++ or Microsoft's JVM will find Visual Quantify is a solid tool for evaluating application performance. I am hopeful that Rational's acquisition of Pure Atria might bring expanded platform and tool support for Visual Quantify, along with integration into the rest of the Rational product line.

Maggie Biggs specializes in application development and database technologies. She can be reached at maggie_biggs@infoworld.com.

THE BOTTOM LINE

Visual Quantify

Developers who are constructing Java and C++ applications on the Windows NT platform will find that Visual Quantify is a very useful tool for evaluating application performance prior to deployment. The graphical tools that are included in the product make locating performance issues almost a joy.

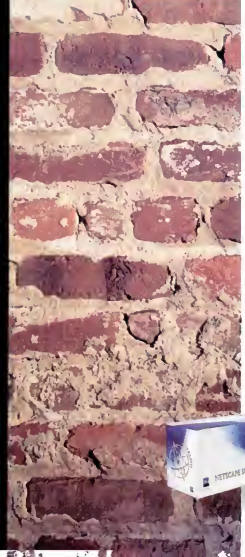
Pros: Measures performance for entire projects or just components; profiling at a function or line level; can repeat application profiling after code changes; helpful graphical views; integration with Microsoft's Visual Studio.

Cons: Limited platforms and development tools supported.

***Rational Software Corp.**, Cupertino, Calif.; (800) 353-7873, (408) 863-9900; fax: (408) 863-4120; info@rational.com; http://www.rational.com.*

***Price:** $550 per seat; $748 per seat, includes one year of upgrades and support.*

***Platform:** Windows NT 3.51 and later.*



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INSIDE THE FIREWALL · DAVE TAYLOR

Platform wars? Your intranet can offer a peace treaty

IT'S A STRANGE THOUGHT, but as I have watched the ongoing travails at Apple and have simultaneously observed the clear evolution of Microsoft's flagship operating system from Windows 95 to Windows NT, I have started to wonder whether the best strategy is just to concede to the OS wars.

Unix is still a powerhouse operating system, of course. Indeed, the vast majority of Web sites today are powered by some type of Unix server, whether it be one from Sun or Hewlett-Packard or even just a cheap Pentium machine running Linux or another variant of Unix.

There are certainly those who are running OS/2, the operating system that time forgot (at least we in the media forgot about it), and then there are all those minicomputers and mainframes running a wide variety of operating systems. But aren't we all just fighting the tide here? Isn't your intranet migrating to a Windows NT environment, like it or not? Or is it?

Fellow travelers

Certainly the major software vendors are not fighting the Windows NT current. Even traditional Macintosh stalwarts, such as Adobe Systems, are succumbing and offering their entire range of products on the new NT platform.

Even more stark is the story of DeltaPoint. This is a company that started life by creating a very nice graphing package for the Mac called DeltaGraph. Just recently, however, the company sold off DeltaGraph — and the latest version of QuickSite, its very good Web-page editor, which will never make it to the Mac, according to company officials.

What I am trying to highlight here is that even through these dark days of the Mac, even through the rise of Windows NT, and even with the preliminary hype about the next release of the Windows OS, the most important criterion for any internal network deployment must in fact be, what will its interoperability be with other systems already existing on the network?

Another way to think about it is this: How many 386 computers have you seen pressed into service as file or print servers for a department within your company?

At the Internet Mall, we have an old PC that had been collecting dust but was resurrected and is now doing very good duty as our print server. But it runs Windows 95, which unfortunately prevents it from talking directly with the heterogeneous mix of different operating systems on our network. Is this really a good way to run an intranet?

OS invasion

It's like a plot from an episode of the *X-Files*. Here's how it would go: Cancer Man gives a CD-ROM to Fox Mulder, who finds out that it's a new operating system that appears to have wide-ranging interoperability with existing, terrestrial systems on the network.

Fox installs it on his PC at the FBI office, and slowly, insidiously, it becomes clear that although it has some minimal level of actual, reliable interoperability with other OSes, in fact it really only works well when speaking to another copy of itself.

Two weeks later, the entire FBI lab is already running the new operating system, when the people at the lab realize that they have got a serious problem ...

It's not that I think Microsoft is evil. Still, it's astounding to me that so many companies are sacrificing personal productivity in the interest of the common platform. Remember *Invasion of the Body Snatchers*?

Your battle plan

Your goal as an intranet architect should be to create an environment that offers the maximum number of services for the maximum number of users — transparently — in a manner that creates an optimal productive environment for each member of the team. Ideally, to achieve this goal, you should adhere to a platform-independent approach whenever possible.

Otherwise, it's the tail wagging the dog: When you start choosing a particular work environment because it is easier to install an update to the official productivity application that created it, rather than because it's what the worker prefers or the work requires, you may have a problem.

Dave Taylor is president of I-commerce innovator The Internet Mall (http://www.internetmall.com) and can be reached through terrestrial e-mail at taylor@internetmall.com.

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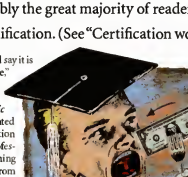
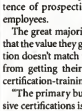
Product certification may be helpful but mainly feeds vendors' profit appetites

Getting certified on a particular product may or may not benefit your company or your career, but there's one party it definitely will benefit: the product vendor. As we saw last week, probably the great majority of readers see at least some value in certification. (See "Certification won't replace experience, but most still say it is worth the trouble," Sept. 8, page 72.) Participants in an *InfoWorld Electric* reader forum pointed out that certification encourages IT professionals to get training and, although far from perfect, does offer a simple way of judging the technical competence of prospective employees.



The great majority of readers also realize that the value they get from product certification doesn't match the value vendors receive from getting their customers to enroll in certification-training programs.

"The primary business reason for expensive certifications is be sure you have invested so much time and money in product AYZ, you will never, ever, recommend any other product," one participant noted. "The secondary business reason is advertising. The company that pushes 'paper' certification in volume can advertise the high number of 'trained professionals' who support their product. The third business reason is the money it brings in, including royalties paid by third-party trainers. Then, finally, there is the point of assuring a pool of people who are at least familiar with the arcane terminology your product is obfuscated with."



Some would rank the vendor's profit motive a little higher than third, as did one respondent who recalled how a vendor refused to certify students who had taken courses at a community college.

"They would not give the students credit for the course or the test they took even though the course was taught by a certified instructor with the standard manuals and tests," the reader noted. "The reason for this — the school was charging a tenth of what the local (third-party trainers) were charging."

Support costs are another area where the benefits of certification are irresistibly attractive to vendors, because they can virtually require customers and those in the channel to pay to learn to support a product.

"For example, you can't be a gobbledigook solutions provider without X certification points in your company," one reader noted. "Or the vendor may provide Y level of support if you have a certified gobbledigook engineer, but may require you to purchase Z support if you don't."

Many readers felt that the certification tests themselves still too often wind up testing for the wrong things.

"Those exams tend to indicate how the vendor would prefer that you solve the problem, as opposed to the way you'll have to handle it in the real world," one reader said, "to say nothing about dealing with true heterogeneous environments."

One interesting comment about certification materials actually came from a reader responding to our recent discussions about documentation practices. (See "Which suits your technical-manual fancy: print or online documentation?" Sept. 1, page 68.) He preferred printed manuals to hunting down documentation scattered on multiple CDs.

"Manuals should be sold to anyone and given to their development partners as a part of the package," the reader said. "Instead they charge exorbitant amounts for technical support."

It isn't coincidence that brings these topics together; current practices in certification and documentation seem to deliver less for more. Rather than end on that dark note, let me add good news. The week the certification forum began, I got a message from the experienced but uncertified network manager I described last week. It took a long, in-depth interview, but he landed a position he's very happy with. It seems there are some companies that want to find out for themselves what you know rather than relying on a piece of paper.

Ed Foster has been writing about technology and consumer issues for nearly 20 years. Send him gripes about computer companies and products at gripe@infoworld.com, or visit his Gripe Vine Forum on InfoWorld Electric (http://www.infoworld.com).

BRIAN BAZZA

TO THE EDITOR

ACRONYMS, *computer training, managing, and the complexity of PCs are all fair game for our columnists and, as you will see, our readers. The following letters don't just criticize, they add helpful insights and alternative solutions to some of the questions the computer industry now faces.*

What's in an acronym?

IN SANDY REED'S recent column, she refers to APL, BBS, and a number of other abbreviations as acronyms. [See From the Editor in Chief, Aug. 25, page 57.] They aren't as I've heard them pronounced.

An acronym is an abbreviation that is customarily pronounced as a word. Hence, LAN, CORBA, BIOS, and ASCII are acronyms, but CDDI isn't.

Languages do change and evolve, and often for the better. If a new word or usage is needed or even simply convenient, I'm all for it. But if a change in meaning causes the loss of a distinction, reducing a useful word to a mere synonym for another, I can't see that we've gained anything. That's why I try to fight the good fight on "to comprise" (not the same as "to compose"), "celibate" (not the same as "chaste"), and "acronym" (not the same as "abbreviation").

After all, if "acronym" is to be reduced to serving as just another word for "abbreviation," why not just say "abbreviation" to start with?

D. Gary Grady
Durham, N.C.
dgary@mindspring.com

I ENJOYED Sandy Reed's piece on acronyms. As an Air Force officer in the distant past, we were required to spell out all acronyms when first used. If it was used subsequently in the letter or article, only then could we use the acronym. It was the rule.

So one day, I had to use the nonacronym Beginners All Purpose Symbolic Instruction Code only once in a letter. Unfortunately, no one understood what I was writing about because I was not allowed to use the acronym Basic.

Don Glenn
Omaha, Neb.

The truth behind gated conferences

TIM STEPHEN WROTE in a letter to the editor that the Camden Conference is unlikely to "produce relevance" except to "gated communities" due to the price tag, which he quoted at $600. [See to the Editor, Sept. 1, page 68.]

I have registered for the conference and expect to take away from it valuable insights into digital communications. As the IS manager in the central office of an international nonprofit organization concerned with sustainability, democracy, and economic development, I welcome such an opportunity.

We don't have a huge budget, so the modest $195 I paid was refreshing. The full fare of $595 was for corporate types or casual attendees. Lower rates were accepted for people in qualified public sector or nonprofit organization[s] with planning responsibilities for their communities.

I even had to send a statement discussing how the conference was likely to benefit me and my organization.

Conferences that charge $1,000 or more with no real discounts for small organizations are the real gatekeepers, not ones like the Camden Conference.

Adam Bush
Institute for Sustainable Communities
Montpelier, Vt.

How to manage

IN REGARD TO NEW management and new directions, I have experienced this effect several times over the years especially with management that does not understand the IS role. [See IS Survival Guide, Aug. 25, page 86.] I have to take exception to the idea that one somehow gets what one deserves.

A sharp manager understands that there will often be some built-in loyalties to the "old way." A sharp manager will solicit honest, open feedback, get a feel for the group they now have responsibility for, and then use each person's strengths to shape a new direction.

The difficulty is getting one's employees to embrace a new direction. Beating one's employees over the head with a new management HAPS [Humoring a Promising Subordinate] or SCD [Strategic Company Direction] or consigning them to "special-projects oblivion" is extremely poor management and

CONFERENCES THAT CHARGE $1,000 OR MORE WITH NO REAL DISCOUNTS FOR SMALL ORGANIZATIONS ARE THE REAL GATEKEEPERS, NOT THE ONES LIKE THE CAMDEN CONFERENCE.

Adam Bush

resorting to fear tactics to get the job done.

With few exceptions, Bob Lewis' articles are bull's-eyes. In this case, I think an often-overlooked side of management is the extrinsic idea of how to aid your employees in work and goal completion rather than the intrinsic idea of how to manage, supervise, and direct your employees in pursuit of your own goals.

As in most things in life, balance is that often elusive target.

Randy Slutz
Pocatello, Idaho
rslutz@simplot.com

Basic training

BOB METCALFE'S comments about training are thought-provoking — as he intends — but also bring to mind how little emphasis is often placed on training beyond the basics. [See From the Ether, Sept. 1, page 107.] Yes, Metcalfe got a great education at MIT and Harvard, but most of the world is stuck with barely adequate training.

Specifically, most of the people being paid, as professionals, to develop software for American enterprises don't recognize the names or significance of von Neumann, Eckert, Noyce, Backus, F. Brooks, Yourdon, and a

host of others. Those installing big networks haven't a clue who Shannon — or Metcalfe — might be.

I believe that focusing on the technology for training will only perpetuate the situation where people receive the basic technical training needed for a particular position and then they are promoted above their level of competence without broadening their "education." The result is systems and networks too often built like a house of cards.

Bob Metcalfe's voice speaking for more of the right training — on an on-going basis — would be a service to our industry.

John T. Hooper
FutureTech Institute
Nashville, Tenn.
jthoop@mindspring.com

On the complexity of PCs

I'D LIKE TO RESPOND to Jim Root's comments on the complexity of PCs. [See To the Editor, Sept. 1, page 68.] I have spent a lot of time in both software-development and customer-service roles, and I agree that there is software and hardware out there that's user-hostile. But to put all the blame for lost work and productivity on systems that are too complicated is just shirking responsibility.

A large number of computer problems could be avoided if users made the most minimal effort to read the documentation. Sure, there are manuals that are lacking and systems that could be better designed, but to make no effort at all and expect a powerful system to be intuitively obvious is a disaster waiting to happen.

Tom Bridgman
Croton-on-Hudson, N.Y.
mrtom@pobox.com

TOM BRIDGMAN WRITES that since cars are primarily used to get from point A to point B, we should compare them to single-purpose computers, like dedicated work processors or data analyzers. However, that's a somewhat specious argument. A car has one primary purpose but can be used for many things: to go to school, to go to a job, to take a vacation, to shop, etc. Similarly, all a computer really does is compute, but it can be used to type an essay, calculate salaries, find travel routes, or buy products online.

Both cars and computers have cores that respond to certain predefined inputs (e.g., microcode or wheel orientation). However, it's up to the user to decide what order those inputs should be given, and the results can vary from printing a document to designing a house, or from driving to Atlantic City or crashing into a street lamp.

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FROM THE EDITOR IN CHIEF · SANDY REED

Mentor's Corner articles: Learning from the people behind the decisions

Some technology implementations are cut-and-dried. Others contain a secret ingredient: the human factor. It may be as simple as making a key decision based on gut instinct or as unusual as accepting an innovative idea from an unexpected source. Discovering those secret ingredients in technology decisions is the charter of a new *InfoWorld* feature called Mentor's Corner.

Each week, Mentor's Corner will explore the human factors behind an enterprise technology implementation. The *InfoWorld* staffer behind the feature is Senior Writer Blaise Zerega. Last week he wrote about the people behind the successful implementation of SAP R/3 at Fujitsu Microelectronics. (See "Management support a must for big bang," Sept. 8, page 100.) This week he looks at how choosing the right technology partner paid off for SegaSoft as it installed its Oracle financials package. (See page 104.)

MENTOR'S CORNER

Mentor's Corner is an extension of *InfoWorld*'s existing Case Studies and Trail Blazers, both of which will continue to appear from time to time. Each of the three has a unique focus. Case Studies are about the nuts and bolts of deployed enterprise solutions. They focus on the problems and benefits of technology from an organizational point of view. Trail Blazers chronicle the experiences of companies that are early adopters of emerging technologies.

Mentor's Corner articles are more personal than Case Study or Trail Blazer articles. They will always include the human factor as a key part of the solution, enabling our readers to learn from the personal experiences of their peers.

If you have a story to tell about overcoming hurdles through innovation and creativity, you, too, might be a mentor.

Keeping in touch with the real world of IT executives is a major part of *InfoWorld*'s editorial mission. If you think your company is a candidate for a Case Study, Trail Blazer, or Mentor's Corner article, send your story to blaise_zerega@infoworld.com.

Sandy Reed is editor in chief of InfoWorld. *Contact her at sandy_reed@infoworld.com.*

INFOTOON · CHARLES STUBBS

"JUST IN TIME FOR AUTUMN, THE STUNNING NEW THIN CLIENT."

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BPA

Java in the enterprise

Heading to promised land

Java offers IT managers the prospect of applications that can run across all platforms in any given computer environment. We found that Java lives up to its promise in most cases, though it is not yet all things to all platforms.

ANALYSIS

Issues

- **Portability** Does Java live up to its claims of true cross-platform compatibility?
- **Performance** What kind of performance does Java deliver?

IT departments today are faced with the bewildering task of administering a vast array of computing architectures. It is hard work supporting the mainframes where crucial data is stored and the wide variety of PCs, including Windows machines of differing powers and flavors (Windows 3.1, Windows 95, and Windows NT on 386es, 486es, and Pentiums); Macintoshes; OS/2-based machines; and Unix boxes. Although most IT departments have learned to cope with their collection of diverse computers, it is not difficult to imagine how much they are straining under the extra load of supporting different applications on different computers.

It is true that many vendors have written applications for many platforms — Lotus Notes and Netscape Navigator are two of the most well known — but these applications are few and far between and cause an enormous development strain on the companies that write them. IT departments often are forced to use a variety of applications on their heterogeneous networks. The end result is that the extra time it takes to administer and support these applications drives the cost of ownership numbers through the roof.

ENTER JAVA, STAGE LEFT. Enter the enticing promise of Java. When Sun Microsystems came up with the catch phrase "write once, run anywhere," many ears perked up. The chore of talking one set of users through opening and saving files and then having to repeat the process differently with another set of users has IT managers casting an eye in Java's direction in search of relief.

Apart from its promise of platform independence, Java has many other alluring hooks. It is a relatively easy language for programmers to learn and they like to program in it. The language's lack of pointers, ease of multithreading, and substantial networking support are all elements that software designers point to when praising the ease of program development in Java.

But there is skepticism, too, as IT managers clamber for a smattering of sanity in this seemingly never-ending spiral of latest and greatest technologies. Many are asking how they can leverage Java technology and still maintain current investments in hardware and software. The answer is simple. Java's allure is that the Java virtual

Analysis contents

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What is all the fuss about Sun's 100% Pure Java initiative?
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Future Java-based products.

machine (JVM), a virtual computer that runs compiled Java programs independent of the operating system on which it runs, already is written for every platform. (See graphic on page 78.) In addition, many desktops in the corporate enterprise already have Java deployed in the form of a Java-enabled Web browser.

JAVA PRODUCTIVITY APPLICATIONS. In this Analysis we set out to test the "Java platform" (virtual machines on various platforms) using real-world productivity applications that test Java's portability and performance. Many IT departments are writing or are considering writing applications in Java to answer their business needs. What they do not know is how well these applications will run on each platform. How well does an application written on NT run on a Macintosh, for example? We used Java applications (Anyware Office 4.3, shipping from Applix, and Novera Epic 1.2, shipping from Novera Software) to answer this and other questions. (See Conclusions at right.)

Originally, we wanted to test several productivity applications writ-

▸ Heading to promised land, page 82

Conclusions

▸ Continued from page 1

cases. The Java applications we tested, Anyware Office 4.3 from Applix and Novera Epic 1.2 from Novera Software, ran on the majority of platforms but had problems running on the Macintosh, in particular. Java is CPU- and RAM-hungry, and we found that there is a certain point at which it will not run well at all (on a 486 with 16MB of RAM running Windows 3.1). In addition, it is clear that each vendor's implementation of the Java virtual machine (JVM) had a bearing on how well an application performed.

We were curious about Java's capability to work on OSes that are not multithreaded and do not have multitasking capabilities. The success of the two Windows 3.1 JVMs in running Anyware and Epic shows that Java will run on less sophisticated operating systems.

However, the Mac OS JVM failed to run all of the tests, indicating that there are still problems with Java. Also, some of the applications that did run behaved erratically, displaying status bar text in the middle of the screen or not having full functionality.

Nevertheless, we liked having the ability to enter our performance data in the same spreadsheet on every computer on which we tested.

We tried to test Microsoft Internet Explorer with the company's just-in-time (JIT) compilers enabled on Windows 95, Windows NT, and Mac OS, but none of the JITs held up under testing; they crashed readily when using both Anyware and Epic. We were able to complete the tests using the virtual machines, and these are the numbers we recorded for Internet Explorer on the various platforms.

Of the platforms we tested, Unix (both Sun Solaris and Linux), Win95, and NT ran the applications fastest and with the fewest glitches or display problems. OS/2 ran the applications well, although none of the pull-down windows worked. Mac OS ran the Epic software but the status messages were displayed in the middle of the screen instead of in the status bar. Windows 3.1 ran both applications despite taking a dismally long time to do so on the 486. It had much better results on the Pentium.

If you are an all-Wintel shop you can write applications in Java and expect them to run on both Win95 and NT. All four virtual machines screamed through our performance tests and ran the applications as they were designed, without display problems or loss of functionality. But then, if you are running only Win95 or NT, why not just use Windows applications? One element in Java's favor in this regard: Deployment becomes a nonissue when you can point your workers to the corporate Web server for their vacation accrual information or other business logic.

If you are looking for cross-platform compatibility and are running Macintosh, hold off on investing in large applications written in Java. But if you are running primarily workstation-class computers, whether they are Windows or Unix computers, a Java solution might be just what you're looking for to reduce administration costs.

RELATED ARTICLES

June 30, page 116
Attack of the incredible mutating Java is little more than bad science fiction
Nicholas Petreley vents spleen on Microsoft's attempts to compete with Java's platform independence with J/Direct.

June, http://www.infoworld.com/printlinks/
Novera gives thin clients Epic Java possibilities
A review of Novera's Epic 1.1 Java-based network middleware.

March 31, page 1
Making sense of Java
A special *InfoWorld* report on the corporate usage of Java.

Performance benchmark

Java performance varies from platform to platform

We tested our Java platforms using Anyware and Epic. (See page 82 for Epic performance results.) With Anyware, we opened a 50-page file and a smaller Microsoft Office spreadsheet that we had imported. Our performance numbers for Anyware are based on times for log-in, startup and opening files. Apart from performance, our tests show Anyware's portability over a wide range of platforms. Windows 95, Windows NT, and Sun Solaris 2.51 were the most stable of the platforms that we tested. Several virtual machines had sufficient performance to run our applications. The two NT virtual machines were the fastest loaders, and Caldera's OpenLinux was the most responsive. But there certainly were several virtual machines that did not measure up. We were disappointed that the "100 percent Pure Java" Anyware would not run at all on the Macintosh. But we were impressed with the performance of both Microsoft's and Netscape's Java Virtual Machines' on Windows 3.1, though it is clear that Java is not designed for underpowered computers. We either had a lack of RAM or an underpowered processor in all cases where performance suffered. The underlying OS also seemed to play a role in performance. OSes that take full advantage of their processors and RAM (Win95, NT, OS/2, OpenLinux, and Solaris) were better performers than those that did not (Mac OS, Windows 3.1).

Applix Anyware Office 4.3

	Office startup	Words	Spreadsheet	File tool	Open document	Open spreadsheet	Total
Platform							
Sun Solaris, Netscape Navigator 3.0 on a Sparc 1000, 256MB of RAM	0:17[1]	0:16	0:18	0:03	0:09	0:11	1:14
Sun Solaris, Netscape Navigator 4.0 on a Sparc 20, 128MB of RAM	0:12	0:14	0:19	0:04	0:06	0:13	1:08
OS/2, Netscape Navigator 2.0 on a 133-MHz Micron, 16MB of RAM	1:48	0:44	0:46	0:15	0:25	0:28	4:26
OS/2, Netscape Navigator 2.0 on a 133-MHz Micron, 32MB of RAM	1:07	0:16	0:07	0:03	0:04	0:10	1:47
Windows NT, Netscape Navigator 4.0 on a Pentium Pro 180, 64MB of RAM	0:08	0:06	0:04	0:15	0:03	0:05	0:41
Windows NT, Microsoft Internet Explorer 3.02 on a Pentium Pro 180, 64MB of RAM	0:08	0:08	0:06	0:03	0:04	0:08	0:37
Windows 95, Microsoft Internet Explorer 3.0 on a 120-MHz Compaq Pentium, 32MB of RAM	0:12	0:11	0:11	0:03	0:05	0:09	0:51
Windows 95, Netscape Navigator 4.0 on a 120-MHz Compaq Pentium, 32MB of RAM	0:28	0:16	0:09	0:01	0:04	0:06	1:04
Windows 3.1, Microsoft Internet Explorer 3.0 on a 66-MHz Hewlett-Packard 486, 16MB of RAM	2:04	2:59	3:38	0:32	1:50	2:25	13:28
Windows 3.1, Microsoft Internet Explorer 3.0 on a 133-MHz Micron, 32MB of RAM	0:38	0:35	0:32	0:08	0:09	0:14	2:16
Windows 3.1, Netscape Navigator 4.0 on a 133-MHz Micron, 32MB of RAM	0:47	0:23	0:20	0:03	0:08	0:28	36:43
Windows 3.1, Netscape Navigator 4.0 on a 66-MHz Hewlett-Packard 486, 16MB of RAM	2:40	1:25	1:18	0:10	1:24	1:57	8:54
Mac 8100 MP[2] on a 100-MHz PowerPC 60, 24MB of RAM	0:30	x[3]	x	x	x	x	x
Mac 9600 MP[2] on a 233-MHz PowerPC 604e, 64MB of RAM	0:17	x	x	x	x	x	x
Mac 8100, Netscape Navigator 4.0, 24MB of RAM	2:30	x	x	x	x	x	x
Mac 9600, Netscape Navigator 4.0, 64MB of RAM	0:37	x	x	x	x	x	x
Mac 8100, Microsoft Java Virtual Machine, 24MB of RAM	0:32	x	x	x	x	x	x
Mac 9600 Microsoft Java Virtual Machine, 64MB of RAM	0:18	x	x	x	x	x	x
OpenLinux, Netscape Navigator 3.02 on a 166-MHz Dell Pentium, 48MB of RAM	0:11	0:07	0:08	0:02	0:05	0:06	0:39

1. Times in minutes:seconds. 2. Mac OS Run time for Java. 3. Application did not run on this platform.

CONTRIBUTORS

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Product Analyst

Edited by
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Associate Editor

TESTING OVERVIEW

JAVA IS DESIGNED TO run on many platforms through a Java virtual machine (JVM). We tested several different platforms, each with a number of virtual machines, from a 601-based Power Mac to a Pentium Pro 180 using two Sun Sparc stations as our test servers. We tested our Java platform using Anyware and Epic, an application that delivers file storage and print services to browser-based Java applications.

To make Java run on the various operating systems in our test bed, we needed to install the virtual machine that was compatible with that platform. JVMs exist outside of Web browsers but Anyware requires a Web browser's authentication feature to access the file system on the host computer. Epic also uses the server's file system, but it is more flexible because it does not rely on a Web browser, instead using its own user database. We chose Netscape Communicator on platforms on which it is shipping, Netscape Navigator on platforms on which Communicator is not yet shipping, and Microsoft Internet Explorer on the platforms on which it is available.

TEST INFOWORLD CENTER

We wanted to give the Mac OS every opportunity to run the applications we set out for it. Microsoft has

VENDOR CONTACTS

- **Applix Inc.** Westboro, Mass. (508) 870-0300 http://www.applix.com
- **Novera Software Inc.** Burlington, Mass. (617) 270-4422 http://www.novera.com

JAVA RESOURCES

Looking for more information on Java? Check out these vendor Web sites.

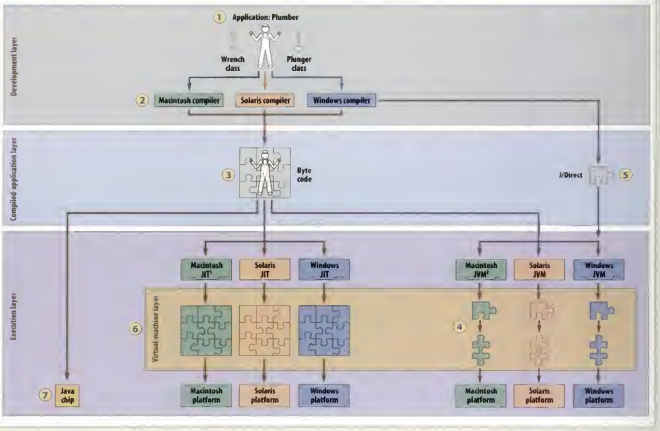
- **Sun Microsystems Inc.** http://java.sun.com
- **Apple Computer Inc.** http://applejava.apple.com
- **Microsoft Corp.** http://www.microsoft.com/java/default.htm
- **Caldera Inc.** http://www.caldera.com

Java application

How Java works

In the Java application-development environment, a programmer writes code on a specific platform and then compiles that code to every other platform. In theory, Java applications written and compiled on one platform will execute on all platforms.

Java application-development paradigm



1 The Java application – in our example, Plumber – is written and dependencies on classes, such as Wrench and Plunger, are made. Wrench and Plunger are objects that help Plumber do its job.

2 Plumber is written in Java but is developed in a specific environment. The Java-development environment is tied to a specific platform. Once coding is completed, Plumber runs through a Java compiler on a specific platform, such as Windows, Solaris, or Macintosh.

3 Plumber is compiled as Java byte code, which is neutral to platforms, so it is no longer tied to a specific platform. Plumber is broken into Java byte code for later execution.

4 When we want to run Plumber it can take several different paths to execution. Once Plumber runs through a JVM, the byte code is broken into discrete "chunks" and sent through the JVM one chunk at a time. The JVM dynamically reconnects the byte to any classes that are needed. The JVM is tied to a specific platform – for example, the Macintosh – although the Plumber byte code is not.

5 An option in the development process is to tie parts of Plumber directly to a specific platform. By using J/Direct, for example, a piece of our Plumber puzzle can be written directly to Windows. That piece of code is passed through the JVM directly to the platform. But that piece is no longer platform-neutral – now it is only executable on a specific platform.

6 Another path that the Plumber byte code can take is through a JIT compiler. In Java, JITs take Java byte code and recompile it as a native binary. That recompiled version of Plumber becomes tied to a specific platform because the new binary version of Plumber is compiled to that specific platform. Plumber then runs as a single block of code.

7 The Java chip, a hardware processor that runs byte code natively, is on the horizon. With a Java chip, Plumber bypasses the JVM or JIT stage and goes directly to the processor. The byte-code Plumber is still platform-neutral; for the Java chip, byte code is its native format.

1. Just-in-time compiler. 2. Java virtual machine.

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WHY THE FUSS?

Portability issues

Why has Java's portability excited developers when "ports" of applications have been around for years? What distinguishes a Java application from a C++ port? C++ can run on any platform, once compiled. So what is the big deal with portability?

In short, it's all in the API. The API is the standard by which an application calls for an operating system's services. Without it there is no common ground between the application and the operating system, and you have an impasse that would make the United Nations blush. Therefore, if you want to write an application that works on a specific platform, you have to get up close and personal with that platform's API. Each platform has its own API, each one distinct and incompatible with other platforms. Applications that only work on one platform really result from incompatible APIs and not incompatible computer languages.

This is where Java comes in. Java is its own platform and has its own set of APIs. An application is written to the Java API, and then a virtual machine makes a command happen on a specific platform. This lets a software engineer write to a single API without worrying about the subtle differences between a Windows, Mac, Unix, or OS/2 API.

Even when programming in Java, it is possible to subvert platform independence. Enter Sun's 100% Pure Java initiative. This program helps to make the "write once, run anywhere" dream a reality.

integrated an interesting feature into Internet Explorer on the Mac OS. You can choose the virtual machine to run for all Java applets in the browser. We liked this feature and wondered why Netscape has not adopted a similar one with its browser. Microsoft has developed a virtual machine with a just-in-time compiler (JIT); Apple also ships the Mac OS Run-time for Java (MRJ) including a JIT with Mac OS 8. We found that the latest shipping version of the MRJ (Version 1.5) was the most stable of the virtual machines for the Macintosh.

Neither Microsoft's JVM nor Communicator (which includes Netscape's integrated JVM) would run Epic, claiming a security exception. But MRJ, Version 1.5, ran Epic fine, (despite formatting problems on some of the status bar information). However, Macintosh fell on its face with Anyware: We could start Anyware without problems on all of the Mac OS virtual machines, but none of them would open any windows other than the toolbar window.

IBM wrote the Java support for OS/2 Warp, and Netscape for OS/2 uses IBM's Java for its web support. Therefore, when IBM ported its Java Devel-

▸ Testing overview, page 84

WRITE ONCE, RUN ANYWARE

By Eric Hammond

AN OFFICE SUITE ON A Java virtual machine in a browser on a 32-bit, or rather, two-bit operating system. Do the math. Given that kind of overhead, what kind of performance could you possibly expect? Frankly, Anyware, from Applix, performs pretty well on beefy enough hardware, and given Java's constraints today, Anyware represents nothing short of a technical miracle. (See our performance benchmarks on page 77.)

Version 4.3, which is priced at $295 and has been shipping since December, contains almost all of the features most users look for in an office suite. It includes a word processor, a spreadsheet, e-mail, and a database and offers a complete application development environment that can incorporate any of these elements.

Reflecting Applix's commitment to the financial services industry, real-time data can be incorporated into documents.

Reasonable performance

I was quite impressed by Anyware's performance. It runs in a browser and pops up a window with icons for the word processor, e-mail, spreadsheet, and database elements. On a Pentium machine running Windows 95 or Windows NT, or on the Linux box that we tested, Anyware responded fairly well. Features such as typing into a word processor document are a little sluggish but not unusable on Windows 95.

Although Anyware performed well on the Linux box, I noticed that even typing into a document consumed significant CPU resources. This could pose a problem as more and more users access the box. Anyware would not run at all on our test Macintosh, even though we tried several different virtual machines. Applix states, and our tests confirmed, that Anyware will not run on the Macintosh.

But putting performance aside, and given the amount of poor programming emanating from Microsoft, Apple, Netscape, et al, what are the chances that all of these layers would work together seamlessly? Even bug-for-bug compatibility is a long shot in this model. With a little virtual-machine consistency between platforms, Anyware would hold a lot more cross-platform appeal.

Anyware, anyone?

Is Anyware right for you? If you want a cross-platform office suite in an environment that includes Unix and PCs, the answer might be yes. There are, however, a few considerations. Because of its architecture, Anyware runs in a browser. Because it runs in a browser it cannot access file and print services on the local machine. To accommodate this, Anyware relies on file and print services from the server. Many organizations already work this way and others might be willing to adapt.

If your organization has Macintoshes on hand, Anyware is not ready for you. For Anyware to live up to its cross-platform promise, it needs to work on the Mac. That may be an Applix issue or it may be a Java-on-the-Mac issue. It's probably a little of both.

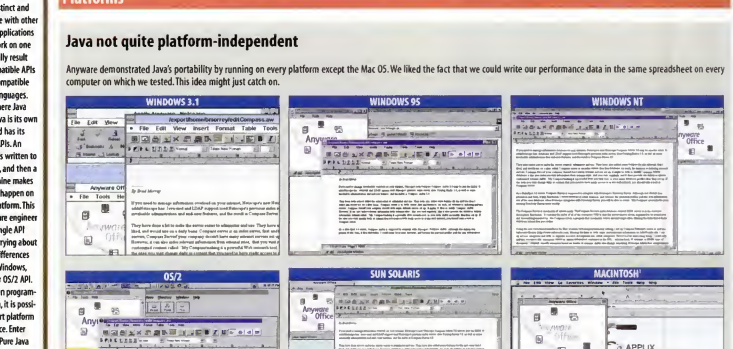
If yours is a pure Unix shop already, you know that the office-suite market is not Unix's strong point. In that case, take a good look at Anyware — it's as good as anything out there and it buys you some cross-platform flexibility you don't currently have.

If you are an exclusively Wintel shop, think twice before implementing Applix Anyware. The tight integration between Microsoft Office and Windows gives it a distinct advantage and Microsoft Office is going to perform a little better because it's C code running on top of the OS instead of Java running on the virtual machine running in the browser.

Platforms

Java not quite platform-independent

Anyware demonstrated Java's portability by running on every platform except the Mac OS. We liked the fact that we could write our performance data in the same spreadsheet on every computer on which we tested. This idea might just catch on.



1. Program started but would not run.

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EPIC PROVIDES STRONG JAVA FOUNDATION

By Brad Morrey

TALK BACK

For questions or comments regarding this Test Center Analysis, please contact John Broderick at john_broderick@infoworld.com. Letters that are short may be published in our To The Editor section.

Novera software's Epic is designed to be the foundation for building applications that are browser-based and built on Java. The Epic server provides three basic services: user authentication, file storage, and print services. Novera calls Epic the "Intranet Network Operating System," and I liked the idea of providing NOS services to the browser through Java.

Originally included as the server-side piece of Corel's Office Suite for Java before Corel changed its plans for this product, the Epic server runs on Sun Solaris and Windows NT 4.0. I installed Epic on a Sun Sparc 20 and had no problems configuring the server. In addition, I set up Epic to work with Netscape's Directory Server 1.01. The Epic server works by maintaining a Lightweight Directory Access Protocol (LDAP) database with information on users, file systems, and print services. Epic comes with a Lightweight Directory Information File with configuration objects and two sample users, which I merged with our LDAP Server. The server also ships with a public domain LDAP server from the University of Michigan that already includes the necessary files.

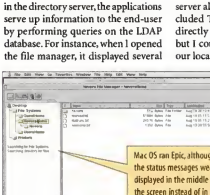
Unfortunately, any users you add from the Epic server must be administered from there as well. I tried to change some of our user passwords using the Netscape Administration Server and once I did they would not function anymore on the Epic server.

The user experience is controlled from a taskbar that can be launched from within any Java virtual machine. When the taskbar appears, there is a simple button depicting a key for logging in to the system. Clicking on that button brings up a user name and password dialog box.

Once authenticated, the taskbar changes to include the applications that are installed on the server. In addition to the management console, there is a file manager, Telnet program, and e-mail. Clicking on one of those buttons brings up the associated application in a new window.

Centrally located information

Because all of the information is stored in the directory server, the applications serve up information to the end-user by performing queries on the LDAP database. For instance, when I opened the file manager, it displayed several file systems. Double-clicking on one of these file systems caused an LDAP query for the information in that file system to be displayed. I liked the idea of storing program information in the LDAP database; it locates the information in one central location, making it easily accessible to other programs.



When I wanted to work on files, I had to set them up in the directories accessible via the browser. If they were on the server already, I was able to use the included Telnet application to connect directly to the server and move files, but I couldn't easily move a file from our local hard drive or another server to our network storage space. A simple, Java-based FTP program that interfaces with the server's file system would have made this a much more lightweight NOS.

You can print directly to the Unix print queue on the server or to one mounted remotely to the server. So the printer must understand whatever you send it.

Novera has written a capable server that provides the back end for application developers who need file and print access from the browser. Epic ships without some functionality that would have made it more useful out of the box. Better integration with the local file system would make this a more complete product. Released on June 1, Epic 1.2 costs $6,500 for 20 concurrent users.

▸ Heading to promised land (from page 77)

Performance benchmark

Novera reveals Java virtual machine strengths and weaknesses

Windows 95, Windows NT, and Sun Solaris were the most robust platforms on which Epic 1.2 ran. We could not run all of our tests on OS/2 because the icons for the applications did not appear on the toolbar after we logged in. We could not get numbers for Windows 3.1 on the 486 machine with Internet Explorer because the browser stopped responding after we opened the File Manager. Netscape Communicator 4.0 ran all of our tests for Windows 3.1. We ran Novera on the two Macintoshes with Mac OS Run-time for Java but it would not run on any of the other Macintosh configurations. Epic also failed to run on the Linux platform.

Novera Epic 1.2

Platform	Startup	Log in	File Manager	1KB file[3]	52KB file[3]	Total
Sun Solaris, Netscape Navigator 3.0 on a Sparc 1000, 256MB of RAM	0:10[2]	0:09	0:14	0:04	0:04	0:41
Sun Solaris, Netscape Navigator 4.0 on a Sparc 20, 128MB of RAM	0:08	0:10	0:29	0:03	0:05	0:55
OS/2, Netscape Navigator 2.0 on a 133-MHz Micron, 16MB of RAM	0:39	0:58	x[3]	x	x	x
OS/2, Netscape Navigator 2.0 on a 133-MHz Micron, 32MB of RAM	0:22	0:39	x	x	x	x
Windows NT, Netscape Navigator 4.0 on a Pentium Pro 180, 64MB of RAM	0:05	0:08	0:15	0:01	0:02	0:31
Windows NT, Microsoft Internet Explorer 3.02 on a Pentium Pro 180, 64MB of RAM	0:07	0:04	0:22	0:02	0:03	0:38
Windows 95, Microsoft Internet Explorer 3.0 on a 120-MHz Compaq Pentium, 32MB of RAM	0:20	0:09	0:30	0:02	0:03	1:04
Windows 95, Netscape Navigator 4.0 on a 120-MHz Compaq Pentium, 32MB of RAM	0:11	0:24	0:40	0:03	0:04	1:22
Windows 3.1, Microsoft Internet Explorer 3.0 on a 66-MHz Hewlett-Packard 486, 16MB of RAM	0:35	3:02	10:23	x	x	x
Windows 3.1, Microsoft Internet Explorer 3.0 on a 133-MHz Micron, 32MB of RAM	0:10	0:40	2:10	0:09	0:17	3:26
Windows 3.1, Netscape Navigator 4.0 on a 133-MHz Micron, 32MB of RAM	0:25	0:30	1:00	0:03	0:05	2:03
Windows 3.1, Netscape Navigator 4.0 on a 66-MHz Hewlett-Packard 486, 16MB of RAM	0:56	2:01	3:43	0:08	0:17	7:05
Mac 8100 MRU* on a 100-MHz PowerPC 60, 24MB of RAM	0:25	0:34	0:48	0:02	0:06	1:55
Mac 9600 MRU* on a 233-MHz PowerPC 604e, 64MB of RAM	0:13	0:24	0:38	0:02	0:03	1:20
Mac 8100, Netscape Navigator 4.0, 24MB of RAM	x	x	x	x	x	x
Mac 9600, Netscape Navigator 4.0, 64MB of RAM	x	x	x	x	x	x
Mac 8100, Microsoft Java Virtual Machine, 24MB of RAM	x	x	x	x	x	x
Mac 9600, Microsoft Java Virtual Machine, 64MB of RAM	x	x	x	x	x	x
OpenLinux 1.1, Netscape Navigator 3.0 on a 166-MHz Dell Pentium, 48MB of RAM	0:08	0:05	x	x	x	x

1. We opened a file of this size as part of our test. 2. Times in minutes:seconds. 3. Application did not run on platform. 4. Mac OS Run-time for Java.

▸ *Corel is rethinking its Java strategy; other vendors are simply waiting for the quick progression of virtual machine versions to settle down before releasing anything.*

ten on many platforms, but during the course of our research we found that currently there are just a small number of applications written in Java, and fewer still that are being commercially marketed to the IT community.

Many companies have been releasing small applets in Java. These are mostly browser front ends to messaging programs such as Novell's Groupwise Web Access client, or simple administration applets such as those used in Netscape's Enterprise Server 3.0 or IBM's Network Printer Manager. We talked to several vendors about larger scale commercial applications and found that most are a few months away from delivering any finished applications written in Java. We spoke to Lotus about its forthcoming suite, code-named Kona, and to Corel about its Office for Java plans. Corel is rethinking its Java strategy; others vendors are waiting for virtual machine versions to settle down before releasing anything.

In addition to new applications, much work is being done in the virtual machine arena to make Java palatably fast on more modest computers. Whatever happens, Java as a technology is not a passing fad. The foundations have been laid for a new computing model during the past two years. What remains to be seen is the kind of structure that will sit on this foundation — will it be high technology's Tower of Babel or the stairway to computing heaven?

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In this struggle, Microsoft has committed what some consider Java heresy ... J/Direct is platform-dependent and cannot run on platforms other than Windows.

Testing overview (from page 80)

opment Kit (JDK) 1.1 to OS/2, Netscape users should have profited, right? Wrong. Unfortunately, Netscape requires JDK 1.0.2 when running Navigator, so there is no JDK 1.1 support in Navigator yet. We ran our tests using JDK 1.0.2 for OS/2, and Netscape Navigator 2.02. We initially used 16MB of RAM but our applications slowed to a crawl on OS/2. However, when we upgraded to 32MB of RAM the times dropped considerably.

Windows 95 and NT are compatible with the widest array of JVMs, but it seems that neither Netscape nor Microsoft wants their browser users messing with the virtual machines. Their virtual machines are tightly married to the browsers, allowing no JVM freedom of choice. We tested our applications with Netscape Communicator 4.01a and Internet Explorer 3.02.

Caldera writes its own Navigator support for Linux. We tested Caldera's Netscape Navigator 3.01c Gold for Caldera OpenLinux 1.1. It is installed by default with X Windows, so we did not have any setup headaches at all.

Sun's Solaris is the proving ground for Java, so we wanted to test Solaris as well in this analysis. We looked at Netscape Navigator and Communicator running on Solaris 2.51.

Finally, Windows 3.1 remains the mainstay of corporate desktops today. We wondered if running Java on Windows 3.1 is feasible. We tested both Communicator and Internet Explorer 3.02 on a 486 machine with 16MB of RAM and on a 133-MHz Micron with 32MB of RAM.

We tested log-in, start time, and opening files in each application. For Anyware, we opened a 50-page file we imported from Microsoft Office and a smaller spreadsheet. Epic ships with a small text file editor, which we used to open a small 1KB document, and 24KB of a 52KB document. (The editor will not open files larger than 24KB.)

DOES YOUR JAVA PASS THE PURITY TEST?

By Sean Dugan

SHARPEN YOUR BLADES. The computer industry is mounting up for a Holy War, this one over 100% Pure Java. Supporters see Java as St. George to Microsoft's dragon. Detractors dismiss Java as a Children's Crusade. Like many industry battles, the issues really boil down to the eternal struggle between standards and vendors' need to distinguish themselves in the market.

Sun Microsystem's 100% Pure Java initiative is part programming guide and part marketing campaign. To earn a Pure Java label, an application has to be written in pure Java. And that Pure Java application then needs to demonstrate at least some portability.

> Sun's 100% Pure Java initiative encourages programmers to avoid resources that are not accessible to SunSoft's standard Java and APIs.

These concepts, purity and portability, are distinct but related. Pure, by Sun's definition, is a Java program that is dependent on nothing but the Java platform, and portability means the application runs on any Java virtual machine. It's important to remember that these are neither good nor bad traits. An "impure" application can be great, and a portable program can still be a buggy disaster. It's all a matter of business goals and how well the program achieves those goals. For example, portability is important for developers who want their applications sold on multiple platforms but intranet applications might not require this feature.

The purity test

To pass Sun's purity test, an application needs to be written in the Java language and in Java only. The application cannot make any native method calls to a specific operating system. All methods need to be abstracted in Java and written to the Java API. Furthermore, the Java API cannot be altered, and the application must conform to the core Java API. Finally, all class libraries associated with a particular application must be pure Java as well. If developers are using their own libraries, these libraries must themselves be branded Pure Java before the application itself can receive that label.

For certification, a developer forks over $1,150 and the application goes through a series of tests at KeyLabs, Sun's partner in Pure Java certification. First, an application is run through JavaPureCheck, a Sun tool that checks for impurities. Developers also provide a separate Java application for automated testing that runs their Pure Java hopeful through its paces. KeyLabs doesn't assure the quality of an application, only that it doesn't break when run on multiple platforms. And any Pure Java application is not necessarily perfectly portable, but it does conform to the Pure Java style guide and has successfully run on at least two platforms.

The trick here is that an application can be pure without being portable. Individual platforms have very specific ways of doing things and to make a truly cross-platform application, one needs to abstract a lot of the coding. For instance, file names are very different on Unix, Macintosh, and Windows 3.1 systems. A file name that's valid on one system will be gibberish on another. So, a portable Java program should never make an absolute call to a file specifically named "My Happy Java File," because this will not translate well on some systems.

Another area of difficulty is the user interface. Different platforms present graphic information very differently. Even individual systems, on the same platform, will show enormous variability in screen size and color depth. The Abstract Windowing Toolkit (AWT), the set of classes used to create the user interface, can subvert portability by specifying absolute positions of icons and colors that are not available on a platform. Once again, the savvy Java developer needs to keep a watchful eye for these portability concerns.

This brings us back to the reasons for the Sun 100% Pure Java push. The 100% Pure Java label indicates that an application has been developed keeping the potential portability pitfalls in mind.

A sticking point

The Pure Java initiative has become a sticking point between Sun and Microsoft. Each is trying to shape the future of Java to its own advantage, and in this struggle Microsoft has committed what some consider a Java heresy. In Version 4.0 of Internet Explorer, the Java Virtual Machine has a feature called J/Direct, which allows direct access to 32-bit Windows APIs from a Java application. This feature is inherently platform-dependent and cannot run on platforms other than Windows.

Besides limiting the portability of a Java application, this opens up the Java security model. Whereas pure applications rely on the "sandbox," a Java application that directly accesses Windows can execute any code. In order to protect against malicious programs, applications are signed using Authenticode, the security authentication model that Microsoft uses in ActiveX controls. Although this model is not fundamentally good or bad, it's quite different from the Java sandbox security model and has different issues associated with it.

Many, especially Sun, see J/Direct as the Great Java Assault, with Microsoft trying to co-opt Java to its own ends. Adding fuel to this fire are Microsoft's Application Foundation Classes (AFCs). A Java application is dependent on classes — predefined software objects that perform tasks. The Java Developer's Kit, released by Sun, has a set of standard Java classes. But they are not the only classes available. Netscape introduced Internet Application Classes, which were incorporated into Sun's, creating a new group of Java Foundation Classes (JFCs). Microsoft's Appli-

DEGREES OF PURITY

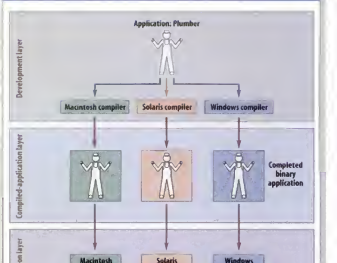
An application has 100% Pure Java certification so it will run on any platform, right? Not so. Although Applix's Anyware has 100% Pure Java certification, it would not run on the Macintosh platform. When we contacted the company to find out why, Applix told us that it has been unable to determine the cause of failures in Macintosh Java virtual machines (JVMs). Applix said it is willing to work with Macintosh JVM vendors to resolve the problem.

Standard application

How a standard application works

In a standard application-development environment, a programmer writes code on a specific platform and then compiles that code to a specific platform. Applications written for one platform cannot execute on another.

Standard application-development paradigm



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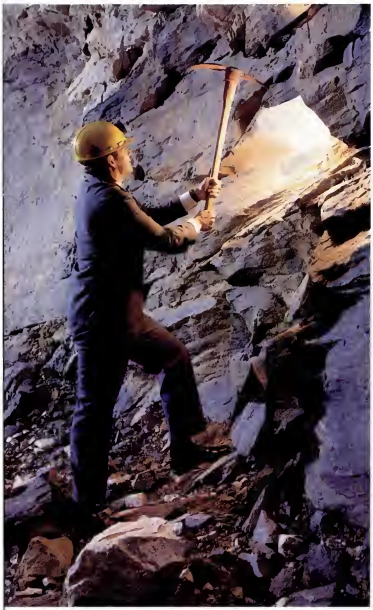

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cation Foundation Classes represent a competing set of classes, seeking to extend the user-interface capabilities of the AWT and also to encapsulate Windows NT features down the road.

Most of the controversy around these technologies is overblown, however. For one thing, J/Direct does not destroy Java. In fact, it may turn out to be a much-needed feature. Although Java supports portability, it is inherently performance-challenged, because of its interpreted nature. Access to the native API improves application performance, a boon to many developers. And those developing cross-platform applications potentially have another tool in their development workshop. An application could be structured to check if it can make a native call. If not, it executes in Java byte code format. In other words, developers on both sides of the portability fence can win.

The sticking point right now is the war between Sun and Microsoft. Microsoft has declared that it will not bundle JFC with Explorer, but rather ship its own AFCs. Sun has threatened to revoke Microsoft's Java license and possibly sue. The worst case scenario is that a user needs to download compatible classes along with a Java application. Though inconvenient, it's hardly the end of the world. But listening to Microsoft and Sun, you'd think this is the war to end all wars.

You can read this Analysis online on *InfoWorld Electric* by pointing your browser to http://www.infoworld.com/printlinks/ and clicking on the Test Center button.

Glossary

- **Hot Java** A Sun Microsystems Web browser written in Java. Hot Java provides the capability to import and execute applets across the Internet.
- **HotSpot** Sun's next-generation just-in-time compiler. It is designed to allow Java programs to run as fast as compiled C++ applications.
- **JavaBeans** Independent Java program modules that work together at run time. JavaBeans components can be run remotely in a Distributed Computing Environment using Sun's own Remote Method Invocation or the Object Management Group's CORBA object standard.
- **Java chip** Sun's processor, which executes Java byte code natively. With a Java chip, byte code bypasses the Java virtual machine or just-in-time compiler stage and goes directly to the processor.
- **Java Database Connectivity (JDBC)** A specification and API of Sun. The JDBC API allows any Java-enabled browser to retrieve information from a JDBC-enabled database. JDBC is also compliant with ODBC and SQL-92 Call Level Interface.
- **Java Foundation Classes (JFC)** The building blocks for creating desktop applications that run on the Internet and on Intranets. They allow developers to design applications that mirror the OS on which they will run, including Windows, Sun Solaris, and Macintosh. The JFC is made up of a set of foundation services and components for graphical user interfaces. Users also can create a customized interface for an application and change the look of an application on the fly.
- **Java Developer's Kit (JDK)** Sun's software-development package that implements the basic set of tools needed to write, test, and debug Java applications and applets. It consists of a compiler, a debugger, and a run-time interpreter (virtual machine) for each particular platform. JDK also refers generally to the set of Sun-supplied classes, including the Abstract Windowing Toolkit.
- **Java virtual machine (JVM)** A Java interpreter that converts Java byte code into machine language one line at a time and then executes it. The Java virtual machine runs compiled Java programs independently of the operating system on which it runs, enabling Java applications written on one platform to run on multiple platforms.
- **Just-in-time (JIT) compiler** A compiler that converts all of the byte code into native machine code just as a Java program is run. JIT compilers convert Java's byte code into native code. This results in run-time speed improvements over code that is interpreted by a Java virtual machine.

ON THE JAVA HORIZON

By Brad Morrey

Why would anyone customize their server using Java when writing to the native server will certainly be faster and more compact?

SUN MICROSYSTEMS certainly has been proactive about pushing different uses for its own Java technology, from Java Enterprise APIs to Java on SmartCards. Other vendors also have embraced Java, integrating it with their operating systems, writing clients, or porting applications to it.

Corel set about porting its office suite to the Java platform last fall. I took a look at an early alpha implementation of its Office for Java last year (see "Corel Office puts Java to work," Oct. 28, 1996, page 95) and I was impressed by the company's bold move. Corel produced a very functional beta in March and then fell silent.

In the end Corel decided it didn't want to release another office suite in the same vein as Microsoft Office or even its own PerfectOffice. Instead, Corel decided to use what it has learned on the Office for Java project to build an enterprise version of its office productivity suite.

The new product relies on Visigenics' object request broker (ORB) to deliver applications from a server to the client more like a Citrix WinFrame-type model than the monolithic application suite model. Expect to see the first iteration of this around December.

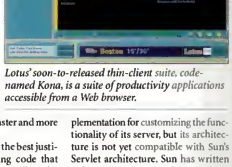
Lotus is also working on a thin-client suite, code-named Kona. Aimed at managed desktops, Kona is a suite of applications accessible from a Web browser. Lotus is targeting Kona at the worker who needs to be able to write or do simple spreadsheet calculations. It's trying to keep the client-side pieces of its applications under 500KB, which would allow users to run Kona over a modem if necessary.

Prolonging life

Sun's next-generation virtual machine, code-named HotSpot, uses just-in-time compilation technology to speed execution of certain code in a Java program. It works by compiling only code that is repeatedly executed, gaining the performance enhancements of current-generation just-in-time compilers without the overhead of compiling all of the code in the program into platform-specific instructions.

Sun also is working on a software-based solution called Java-PC. With Java-PC, a 486 computer is booted into DOS, and then a Java Web top called HotJava Views is loaded — sort of like a windowing environment that will provide a Java virtual machine and a browser. The idea is to turn an aging Windows 3.1 machine into a Java-based NC. The InfoWorld Test Center did not get to see this technology, but it holds promise for prolonging the life of many low-powered desktops currently deployed in enterprises.

Sun also released a specification defining an API for a server-side Java architecture called Servlets, and then promptly built the Java Web Server using the architecture. The idea behind server-side Java is extending the functionality of your server, be it a Web server or a file server with programs written in Java. The idea of customizing your server is not a new one. Netscape has its Netscape Server API, Microsoft has its Internet Server API, and Novell has its NetWare Loadable Modules. The question is, why would anyone customize their server using Java when writing to the native server will certainly be faster and more compact?



Lotus' soon-to-released thin-client suite, code-named Kona, is a suite of productivity applications accessible from a Web browser.

Scalability is probably the best justification. Imagine writing code that performs a calculation on all of the data that your Web server receives, and provides feedback to the user in real time. If you have a small number of people hitting your site, you can run this program on a small freeware Web server, but as your site becomes more popular, you can easily move the logic (because it's written in Java, which runs anywhere) to a beefier server without having to recode or recompile. It is not yet apparent whether server-side Java scales, but as the architecture matures, it should take off like client-side Java.

For some time, Netscape's Enterprise Server has had a server-side Java implementation for customizing the functionality of its server, but its architecture is not yet compatible with Sun's Servlet architecture. Sun has written software development kits for both Enterprise Server and Microsoft's Internet Information Server to allow Servlets to run on these servers.

Vendors also are starting to use Java as middleware for connecting legacy data stores to desktops in a cohesive, integrated manner. Java Database Connectivity was included in JDK 1.1, allowing native access to databases through Open Database Connectivity and vendor-specific database drivers.

Products such as Symantec's dbAnywhere and others are allowing companies to use Java to provide access to product databases and other business information.

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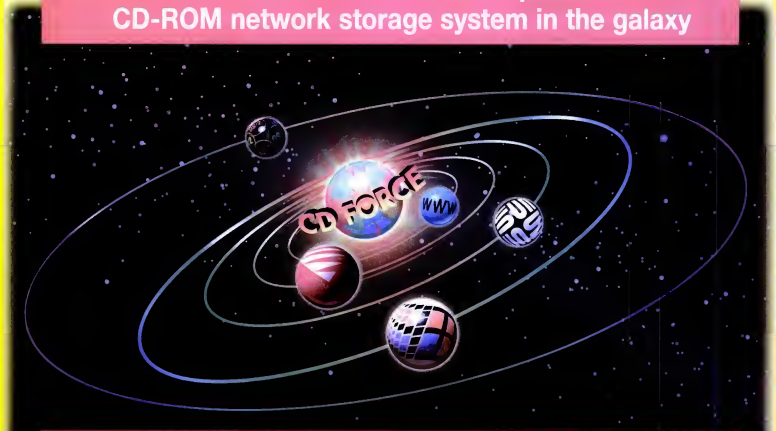

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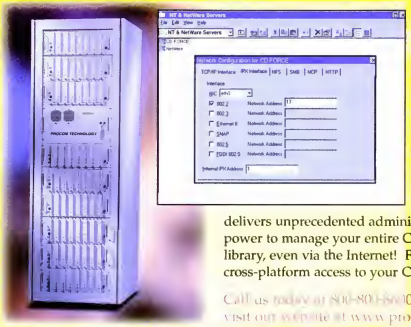

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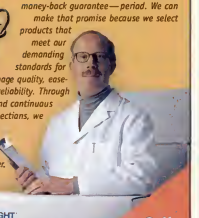

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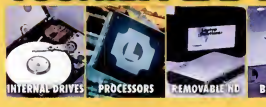

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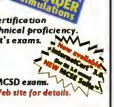

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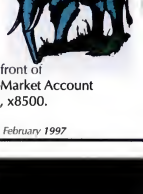

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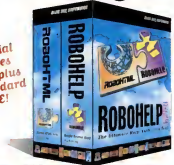

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Server consolidation

Efficiency and technology fuel centralized processing

By Julie Bort

Whatever people in the PC world think about the mainframe's dominance in days gone by, the mainframe did offer IS one asset that has been virtually unknown since the client/server revolution took place a decade ago: centralized control. Today, thanks to powerful multiprocessor servers — and budgets depleted by the high cost of managing distributed systems — the pendulum is swinging back. A growing number of companies are consolidating servers to build a network schematic that looks amazingly similar to the mainframe/terminal structure of yesteryear. These projects typically reduce the number of servers in use within an organization by colocating many applications onto fewer servers. They physically place the bulk of them in a central location. Stamford, Conn.'s Gartner Group predicts that by 2001, more than 50 percent of data-center growth will come from data-center server consolidation.

It's not for everyone. Experts say that in some cases a distributed architecture that places servers close to users to improve performance makes sense. But with processing power constantly growing and the cost of telecommunications dropping, many users are centralizing their processing.

What is fueling this trend? Quite simply, the bottom line.

Users benefit from increasing power in multiprocessor systems

"The fundamental reason to consolidate is total cost of ownership," says Shahin Kahn, director of marketing for data-center and high-performance computing at Sun Microsystems, in Beaverton, Ore.

"Analysis shows that total cost of ownership can be reduced by 30 percent [by consolidating], most by manageability — even though hardware costs can go up," Kahn says. "It's not like you fundamentally change things. You simply do what you're doing more efficiently."

Less management, exponentially, is the operational theme here. A distributed system is far more labor-intensive than a centralized model, according to the Gartner Group. For each server, costs involve asset management, capacity planning, support strategies, training, security auditing and control, vendor selection, change management, migration strategies, and service agreements. Reducing the number of servers reduces the time and expense it takes to perform these tasks. Moreover, the lower costs of telecommunications make remote access more affordable.

In most cases, no one intentionally chose to create a chaotic infrastructure. It created itself. Spurred by the low purchase cost of PC-based servers, IT acquisition slowly fell into the budgetary realm of the average department manager. These managers could pay for PC-based systems, but were often at a loss to support them; unfortunately, without centralized control, so were the IS folks who traditionally handled those matters: the data center.

"Driven by massive investments in personal computing, networking, and server technology, organizations are rapidly migrating from a hierarchical, monolithic approach to a flat, distributed-computing model," according to the Gartner Group.

"Whether deployed by IS or business units, this new approach is driven by inexpensive technology that masks huge labor costs and risks as production and mission-critical systems are rolled out on this fragile, unmanageable infrastructure."

Centralizing computing power does more than just ease the distributed-system-management burden, advocates say. Fewer servers reduces the number of vendors a company works with, forces a company to implement — or simply comply with — enterprisewide standards on software, makes the enterprise easier to secure, and allows a company to engage in what some call predictive maintenance.

"Typically we look at what we have and frequently consolidate servers in order to get economies of scale," explains Nigel Bufton, vice president of business development of worldwide services at Maynard, Mass.-based Digital, which specializes in outsourcing and consolidation projects for large multinational corporations.

"For predictive maintenance this is critical," Bufton says. "When you consolidate you can have a parts inventory. If a disk is failing you can detect it before it crashes if you are monitoring it continuously. You can have on-site engineers. But, the more sites you have, the more this becomes unfeasible."

But centralized processing is not only within the realm of Unix servers that scale to dozens of processors. Smaller sites can gain

NT: THE CONSOLIDATION BUSTER?

Even a brief foray into the issue of server consolidation will quickly turn up a large monkey wrench: Windows NT. Debate rages on about whether NT is one of the culprits of distributed-system chaos or the eventual platform of choice.

Microsoft, which generally espouses a distributed architecture of many NT servers, claims almost NT is scalable enough for nearly all user needs. However, users who are consolidating for large enterprises say today's NT just doesn't cut it.

"We're running a little NT for applications that require NT, but for a database we're going forward with Unix," says Mike Prince, CIO at the Burlington Coat Factory, in Burlington, N.J. "It's not a religious issue at all. Right now, it's the opposite of religion. We have NT in-house and it doesn't begin to scale as well as Unix. By far, the most scalable, most reliable operating systems are all based on Unix."

Microsoft officials, however, assert that NT will suffice for the vast majority of today's consolidation projects.

"Typically what companies are looking for with server consolidation is cost savings," says Jeff Price, Microsoft product manager for Windows NT Server, in Redmond, Wash. "We've almost quadrupled in terms of database [scalability] while cutting price and performance."

"With the advent of 8- and

▷ NT *page 100*

efficiencies by taking advantage of more powerful Intel-based servers, users say. For example, one large medical manufacturing company in the Northwest reduced the number of single CPU servers it managed by 82 percent when it consolidated onto a handful of NetFrame NF9008 quad Intel-CPU machines running NetWare.

"We targeted 33 servers for consolidation into five NetFrames. Our sixth server (and first system) was for our corporate e-mail, which would have taken up to three or four fully configured smaller servers," explains the company's IS manager. "We consolidated to have fewer servers to manage. We also had a [restructuring], so we had fewer administrators to do the job."

SUN MICROSYSTEMS' *latest server, the E450, lets users consolidate multiple PC servers.*

Server consolidation can even benefit companies that have always had a centralized schematic. For instance, Burlington Coat Factory recently replaced eight production Sequent Computer SE60 and SE70 class machines with three Sequent NUMA-Q 2000 systems configured in a cluster. Each of the NUMA, or nonuniform memory access, boxes is equipped with three quad-Pentium processors, but the NUMA architecture allows the 2000 to connect many more quads to support a total of 252 processors.

"There are a couple of things coming back into vogue: thin clients and centralized computers," says Mike Prince, CIO at Burlington Coat Factory, in Burlington, N.J. "We've always had thin clients and very few servers — all centralized. In some cases [our previous servers] were as big as you could make them. They couldn't be scaled and they had limited bandwidth to get at memory."

"Now we've got some enormous power," Prince adds. "We think this three-node cluster will last forever. We can scale on the inside as opposed to buying more boxes ... it's a cost-of-ownership decision and a practical tactical move."

THE GOTCHAS. For all the compelling reasons to consolidate servers, the ultimate success rests on a variety of circumstances. For instance, servers will only run a single operating system, so standardization will be required. This means that IS managers may have to tread some pretty heavy political backwaters if the servers targeted for consolidation reside in departments that have been running competing brands of operating systems, such as NetWare, Windows NT, or Solaris. Someone's got to give, so user buy-in is a must. Of course, consolidation can occur around operating systems. But the more operating systems there are, the higher the management cost, so standardization is best whenever possible.

"The toughest things [were]: the newer operating system, data conversion, and the client perception [of data ownership]," one server-consolidation-project veteran describes. "We mitigated most of it by working closely with the vendors and getting our clients to become partners."

Sun Microsystems' StarFire server is a partial exception to the single OS rule. The StarFire family includes a feature called Dynamic System Domains, which allows resources such as CPUs, memory, I/O, and interconnects to be partitioned into domains without rebooting the system. Because domains can be isolated and managed separately, they can also run different versions of Solaris. One large system is able to function as many smaller ones or allows one application to grab more power during shorter bursts of heavy use, such as seasonal upswings.

SEQUENT COMPUTER'S *NUMA-Q 2000 server is aimed at very high-end processing needs.*

However, end-users say one of the ultimate benefits of server consolidation is the productivity gained by upgrading older software and older custom applications.

"The issues we ran into were serious issues," Prince says. "The new computers required the latest version of the database and the OS and all the third-party software. We had been running some very old Oracle applications. We had to basically upgrade these applications and fix them. You could manage all of these with middleware, but it was healthy for us to clean up and bring all of these applications up to date. It increased our efficiency even more."

Another important consideration is which server vendor to choose. This is far more critical when consolidating than it was when using a greater number of servers, vendors say.

"If you have 10 servers with 100 users each on them [and] any one goes down, 10 percent of the population goes down," says Marty Miller, product line manager for server vendor NetFrame Systems, in Milpitas, Calif. "Now if you take the 10 servers and consolidate them into one server and it goes down, 100 percent of the population is down. Reliability becomes much more important as you go to consolidation."

IS managers must therefore limit their search to servers that were designed with the server-consolidation market in mind. In addition to being scalable enough to manage growth inside the box (and with clustering), these servers should have redundant systems, hot-swappable components, and management software that automatically switches between failed and backup units. These features cost more. On the high-end side, some multiprocessor servers are competing in the mainframe space with price tags equally as steep. For instance, the StarFire family from Sun Microsystems has entry-level systems that are priced at more than $800,000. Sequent's NUMA-Q 2000 family ranges in price from about $240,000 to $2 million. IBM's RS/6000 SP, also a heavy player in the consolidation market, sells in about the same price range as the NUMA-Q and StarFire.

Numerous players are also now in the low-end space, thanks to Intel's quad-processor boards. Although these don't feature the scalability or level of availability as the premium-priced Sequent NUMA-Q, they will run NetWare and NT. These include the NetFrame NF9008, the Compaq ProLiant 7000, and the ALR Revolution 2XL.

IS managers should closely examine benchmark information on these servers as well as meantime-between-failure statistics included on vendor-specification sheets. Most importantly, they should talk to other customer references.

While evaluating reliability issues, be careful not to get caught up in an old and rather obsolete discussion on SMP architecture vs. massively parallel processing (MPP). For the most part, servers competing in this market have adopted the SMP architecture, which, simply speaking, shares memory and resources between CPUs. The exception is the RS/6000 SP, which uses MPP. Some legacy applications perform better on one type of architecture than another, but because many users upgrade applications when consolidating, such a shopping criterion is often a moot point. However, the RS/6000 SP has long since been a popular choice for server-consolidation projects, particularly in IBM shops, because of its extreme scalability and robustness, vendors and analysts say.

LEAVE WELL-ENOUGH ALONE. It's worth mentioning that there are times when consolidating a specific server isn't the best idea. Disaster-recovery planning is one instance in which some redundancy of servers in separate locations is a wise idea. Another reason why separate may be better is to improve the performance of a popular application by bringing it closer to the source that uses it most. Or to replicate an application to several disparate workgroups that use it most (such as Lotus Notes). But tread carefully here. Replication is one of the factors that contributes to a fragile, chaotically distributed system in the first place, experts say.

One good bit of advice is to start with the premise that every server will be consolidated and then justify every case for a standalone server. That means a detailed plan must be created, approved, and anointed with user buy-in before a single server is unplugged.

"Make sure you understand why you are consolidating," Bufton advises. "If you are doing it for totally cost reasons, you'll probably be disappointed."

"Almost everything done for cost only does not fulfill the dream," Bufton says. "You should really do it for the standardization, the flexibility, and to regain control of the future. Have a clear understanding of the vision and make sure you have it timed well."

Done right, server consolidation is a clear case in which less is more.

Julie Bort is a free-lance writer in Dillon, Colo. She is the author of Building an Extranet, *published by John Wiley & Sons.*

TOP 10 LIST

So, how do you know if your company can see good consolidation returns? Several indicators are clear warnings that your company should undergo a server-consolidation project. In David Letterman-style, here are the Top 10 signs that your company is a prime candidate. It's time to consolidate when ...

10. You start losing track of your servers.
9. Your hardware is having seizures over scalability.
8. You have more systems administrators than you have users.
7. You're running 15 different operating systems.
6. You don't know if you are in compliance with all of your software licenses.
5. Capacity planning is a synonym for buying more servers.
4. Department managers routinely purchase and install their own servers (but leave management to you).
3. Utilization rates for more than half your servers are in the single digits.
2. Physical security of every server could only be accomplished by *Star Trek*-like shields (rather than locking the door to a single room).
1. And the No. 10 sign that your company is a prime candidate for consolidation: You spend more money on server upkeep than the U.S. government owes.

NT

Continued from page 99

10-CPU servers, were getting into the very high end," Price adds. "We're probably at a point where we cover 90 percent of customers' consolidation needs. The perception in the market is lagging [behind] the reality."

Price points to a study performed by the Transaction Processing Performance Council in which NT fared well on price-per-transaction analysis (http://www.tpc.org). He names the growing choice of multiprocessor NT systems offered by ALR, Digital, Unisys, Compaq, Hewlett-Packard, and IBM.

Some say vendors are banking on NT as a platform of the future, but will not concede that the OS is ready for it all today.

"NT is going to the data center. Users will push it into the data center," says Steve Wanless, senior marketing manager at Sequent Computer Systems, in Beaverton, Ore. "Don't get worried about NT's scalability. You have to trust Microsoft to recognize that and solve it. The data center tends to take the same view of NT that they did on Unix."

"Departments will use applications on NT if that's what they need, then turn around and say, 'Hey, this is your jurisdiction.' If [IS] isn't careful, they will be in a constant state of server consolidation," Wanless adds. "So, I ask my customers, 'What are you going to do about an NT infrastructure?'"

Sequent has announced plans to implement NT on its NUMA, or nonuniform memory access, family of machines in 1998.

NT remains the question that should be addressed by all IS managers who want to ensure that server control remains neatly and efficiently within their domains. With the growing number of applications for the OS, it surely can't be ignored.

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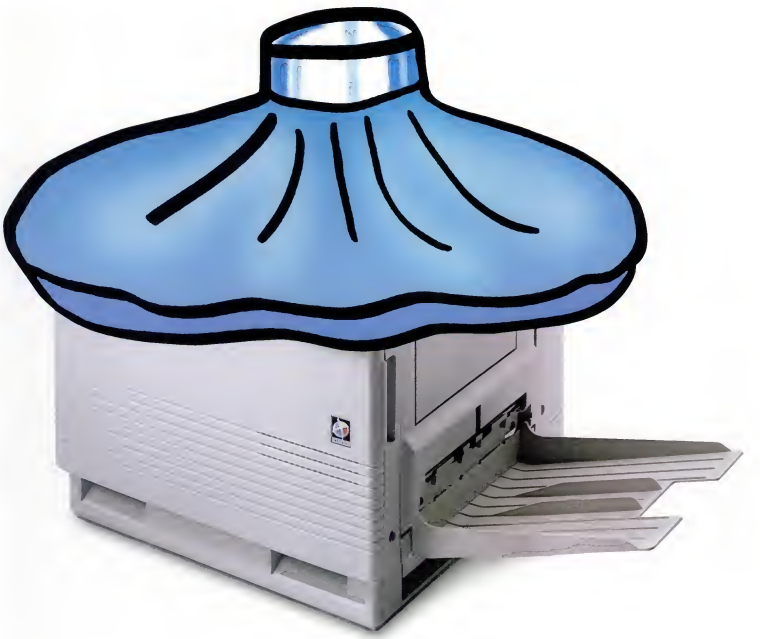

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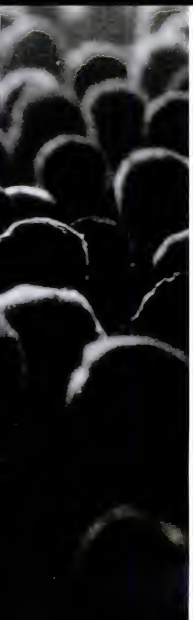

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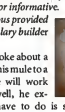
MANAGEMENT SPEAK: *Our leadership team has determined that we need to establish metrics for our key processes to verify that we continuously improve.*

TRANSLATION: *Let's produce a blizzard of numbers large enough to make the leadership's eyes glaze over while not actually measuring anything useful or informative.*

— Irving Anonymous provided this week's vocabulary builder



THERE'S AN OLD joke about a farmer who loans his mule to a friend. The mule will work hard if treated well, he explains. All you have to do is speak gently, and the mule will do what you want.

His friend tries it out, but the mule won't do anything — it just sits in its stall taking up space and food. When the owner comes back, his friend complains.

Puzzled, the owner picks up a two-by-four and starts whacking the mule about the head and shoulders.

"I thought all you had to do is to speak gently," his friend says to him.

"Well sure, but first you have to get its attention," explains the farmer.

The joke isn't all that funny, but the punch line can be used in a wide variety of circumstances. It probably explains, for example, the exorbitant estimates bandied about for the total cost of ownership (TCO) of a personal computer. The promoters of these ridiculous estimates are just trying to get your attention.

This is the last of our three-part series on the subject. First we showed that TCO asks the wrong question. Last week's column focused on the statistic that you should care about the most: the fixed overhead costs (personal-computer overhead costs, or PCOC) associated with LAN-attached PCs. PCOC comes to about $3,000 per year.

We're going to wrap things up this week by looking at the number you may have thought TCO measured: the cost of personal computing. Personal computing is the term we'll use to cover the use of word processors, electronic spreadsheets, personal information managers, and stuff like that — software designed to enhance personal productivity and effectiveness.

It's tempting to calculate a total cost for personal computing, but it would be a mistake for two reasons. First, the benefits, although huge, defy quantification. (The proof: PCs have transformed the workplace. Not one PC-enabled job looks remotely like what equivalent employees produced 15 years ago.)

Just as important, the costs of personal computing are variable — they go up with use. Your goal when dealing with variable costs should be to reduce unit cost, not total cost. And the cost we're interested in is not the cost of personal computing itself, it is the cost of the work supported by personal computing (because that's where the benefit comes in). Let's walk through an example.

Figure that an average employee gets one day each year of formal training, another day of support, and loses two days each year just figuring out how to do stuff. That comes to about $1,600 per year for four days of the employee's time and one day of the support staff's time, at a standard rate of $40 per hour (a reasonable estimate of an employer's total cost for an employee who earns $50,000 per year). Allocate one-third of the PCOC cost to this category of benefit (the other two-thirds go to the other uses of a PC) and you come to a total annual cost of $2,600 per employee for improved personal productivity and effectiveness.

Let's figure that about half of the employee's total work — about 1,000 hours per year — is improved by personal computing. That makes the unit cost of personal computing about $2.60 per hour. This comes to 6.5 percent of the $40 the employer is paying for each hour of the employee's work.

Here's a wild guess: Personal computing leads to improvements in productivity and effectiveness that vastly exceed 6.5 percent. Reduce your support costs? Sure, so long as it has no deleterious impact on the employees you support.

Bob Lewis is a consultant with Perot Systems Corp. Write to him at robert_lewis@ps.net, or join his forum on InfoWorld Electric *(http://www.infoworld.com).*

Young company makes mad dash to apps

■ Built-in advantages, staffing, and rapid decision-making are keys to success

By Blaise Zerega

FOR PETER BROWN, being hired as the director of IS at SegaSoft brought an unexpected challenge. Not only did he arrive amid the growing pains of a young company, but in September 1996 — after two weeks on the job — the CEO and CEO gave him the job of installing a new financial system by April 1, 1997.

"It was a situation where everything was in flux, a mad dash. But the mad-dash element was helpful. It created an environment for crisp, quick decisions," Brown says. "As a young company, we needed built-in maturity of process and scalability."

MENTOR'S CORNER

Founded as a joint venture of CSK Corp. and Sega of America, the U.S. subsidiary of $4 billion Sega Enterprises, SegaSoft opened its doors in Redwood City, Calif., in February 1996 with 150 employees. SegaSoft builds games such as Obsidian, a surreal journey through a 3-D world, and is building an Internet-gaming network called Heat.net, due for release this fall.

SegaSoft had temporarily piggybacked its operations onto Sega's AS/400 system. But that system could not support SegaSoft's business model.

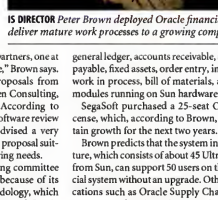
CHOOSE A PARTNER.

Brown's most important decision may have been the composition of a selection committee, which ultimately selected SegaSoft's technology partner. Brown was joined by the controller, responsible for financial operations, and the manager of network implementation, responsible for online services.

"My concern with [potential] technology partners is while making proposals before a committee, the partner who speaks the loudest and acts the boldest usually wins. To avoid this, we ran all three partners, one at a time, before a broad audience," Brown says.

The committee invited proposals from Coopers & Lybrand, Andersen Consulting, and KPMG Peat Marwick. According to Brown, Andersen planned a software review while Coopers & Lybrand advised a very rigid implementation. Neither proposal suited SegaSoft's constantly evolving needs.

In November 1996, a steering committee chose KPMG Peat Marwick because of its rapid-implementation methodology, which promised on-time deployment of Oracle



IS DIRECTOR *Peter Brown deployed Oracle financials to deliver mature work processes to a growing company.*

general ledger, accounts receivable, accounts payable, fixed assets, order entry, inventory, work in process, bill of materials, and alert modules running on Sun hardware.

SegaSoft purchased a 25-seat Oracle license, which, according to Brown, will sustain growth for the next two years.

Brown predicts that the system infrastructure, which consists of about 45 Ultra servers from Sun, can support 50 users on the financial system without an upgrade. Other applications such as Oracle Supply Chain Management and Universal Server also use the Sun hardware. Implementation began in December 1996 and cost about $2 million.

The basic system was ready to go by April 1 — thanks in part to Sega's lack of existing applications and processes. However, when Sega wanted a GUI for the Oracle applications, things got touchy, Brown says.

At this critical junction, the selection committee's hiring of KPMG paid off enormously. KPMG personnel resolved the GUI issue through its close relationships with Oracle engineers. Five KPMG staff members, with as many as 10 people from Oracle and SegaSoft at times, saw the project through.

DAYS OF RECKONING. "April 1 brought some pain, which was to be expected. The issue was not the system, but the maturing of our organization," Brown says.

The April date presented three challenges to the new system: going live, closing a quarter, and starting a new fiscal year. A few tasks, such as processing orders taken from the Web, slipped the deadline. This was turned to benefit as Brown avoided deploying an application without understanding its requirements. Staff processed orders manually until the volume of purchase orders increased and a well-defined solution was created.

June 30, 1997, offered a test as SegaSoft successfully closed its first quarter on the system. One minor problem was the inability to print invoices. This required a manual search for, and repair of, broken lines of code.

"Looking back, I see that going with industry-proven technology helped us turn headaches to advantage," Brown says.

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State Snapshot

Massachusetts' Route 128 still leads to technology jobs

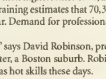
Massachusetts' legendary Route 128 has long been considered "America's technology highway," and prospects for IT job seekers in the state are especially strong these days.

Massachusetts' employment levels are at their highest since 1990, and the state's Division of Employment and Training estimates that 70,300 new jobs have been added in the past year. Demand for professionals with IT skills is very high.

"Demand far, far, far outweighs supply," says David Robinson, president of TechPros, a recruiter in Winchester, a Boston suburb. Robinson cites C++, Java, PeopleSoft, and SAP as hot skills these days.

Boston area

Population	5,768,968
Unemployment rate	3.6%
Median house price	$194,200
Average salaries (large companies):	
Vice president of IS	$191,238
Systems Manager	$101,438
Top employers:	City of Boston, Fidelity Investments, United States Postal Service



SOURCES: U.S. CENSUS BUREAU; BUREAU OF LABOR STATISTICS; NATIONAL ASSOCIATION OF REALTORS; POSITIVE SUPPORT REVIEW SALARY SURVEY; BOSTON BUSINESS JOURNAL

"Technology is changing, and people with data-processing backgrounds are not nearly as in demand as those with cutting-edge skills," Robinson says. "College graduates are getting the jobs and rising faster, so we're seeing a lot of IS managers these days in their late 20s."

Andy Berkowitz, president of Reading-based Jobmatches, agrees.

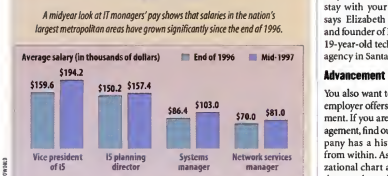
"IT people know they are in demand, so they can pick and choose what companies they want to talk to," Berkowitz says. He notes there is a trend toward companies hiring managers with hands-on experience.

Walt Kouteur, director of marketing at Boston-based recruiter Eliassen Group, says the Internet's growth is fueling the area's job boom.

"There are more and more small companies in new areas of technology such as the Web that provide job seekers with new opportunities," Kouteur says. — *Jim Battey*

IT salaries soar

A midyear look at IT managers' pay shows that salaries in the nation's largest metropolitan areas have grown significantly since the end of 1996.



SOURCE: POSITIVE SUPPORT REVIEW

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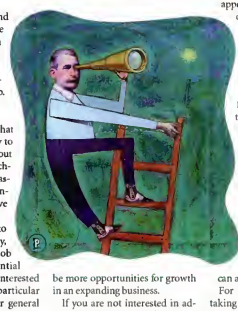
CLIMBING THE CAREER LADDER

Will a new job help you advance?

By Cate T. Corcoran With the job market blistering hot in most of the country right now, you may be wondering if the time is right to switch jobs. You will almost certainly increase your salary if you do, but for many IT professionals, opportunities for professional growth and career development are more important than money. Salary is just one of several factors to consider when you are thinking about taking a new job.



PHOTOGRAPH BY ROBERT TRIPPETT

Technology

IT professionals warn that many companies will try to lure you in with stories about their latest and greatest technology projects, only to assign you Cobol-code-maintenance duty once you've accepted the job.

If you want the chance to work on new technology, listen carefully at the job interview. If your potential employer seems more interested in your knowledge of a particular technology than in your general aptitude and ability to get things done, watch out, says David Stellato, technical support branch manager for the Texas Department of Transportation, in Austin. That can be a sign that the employer wants you to work on older systems.

And keep in mind that the pace of change within the area of technology is now so rapid that you may be able to learn a lot even if you stay with your current company, says Elizabeth Patrick, president and founder of Heuristics Search, a 19-year-old technical employment agency in Santa Clara, Calif.

Advancement

You also want to be sure your new employer offers room for advancement. If you are interested in management, find out whether the company has a history of promoting from within. Ask to see an organizational chart and find out where the people at the top came from. Also, ask whether the company is growing, because there will always be more opportunities for growth in an expanding business.

If you are not interested in advancing as a manager, find out if the company offers a growth path for technical specialists. Advanced technical jobs might involve serving as a technical advisor who evaluates new technologies and makes recommendations to the company. Computer companies may be a good place to look: In addition to their reputation for working on cutting-edge internal projects, they sometimes offer opportunities for a technical growth path to positions such as chief scientist.

Money

Of course, even though money is not always the first consideration, it is still important. People do eventually leave if they are underpaid. Stellato is leaving his state job to be product manager at Internet commerce company Smart Technologies, in Austin. He spent eight years working in state government, but he says finally the salary and stock options in the private sector were just too much to ignore.

Other factors

■ *Why is the job open?* You want to be sure you're not going to inherit too many problems that others have left behind.

"You should be very careful," Stellato says. "You could give up a position that's OK for a position that appears to be good, and it turns out you are walking into someone else's misplanned nightmare."

Watch for the red flags in interviews. If the interviewer asks you if doing such-and-such will be a problem for you, that probably means the department has had trouble with it in the past, Stellato says.

"They will say, 'Can you hold up to the surf's action?' And you'll say you love to surf, only to find out the surf comes in and it beats you to death," Stellato says.

■ *Do you like to take risks?* You take a certain risk when you switch companies, because the last hired can also be the first fired.

For some people, the risks of taking a new job may outweigh the benefits. A 20-year veteran at a Midwestern company says that although his company offers no chance of advancement, his job is secure and he enjoys solving the different problems that come up all the time.

■ *Does company loyalty pay off?* Don't stick around just out of loyalty, because companies don't have any loyalty to you, says a systems administrator who works for an image-processing company in Richmond, Calif. But sometimes there are benefits to seeing a project you're working on through to the end: It can enhance your reputation and get you a higher-paying job when the project's over.

Cate T. Corcoran is a free-lance writer in San Francisco.

LET US HEAR FROM YOU

How did you decide to leave your last job for your current one? Send your comments to margaret_steen @infoworld.com.

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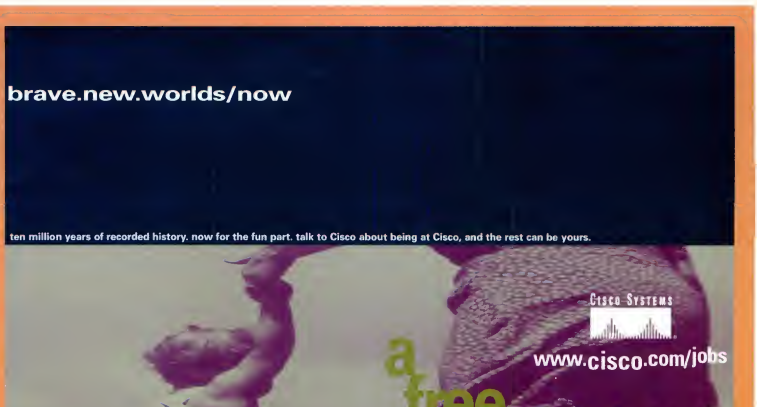

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Define engineering requirements, develop/drive schedules, work on new technologies, and interface with vendors, manufacturing and systems groups. Coordinate the schedule of options qualifications with product management, project management and test group. Work with vendors to resolve issues. Improve group processes and practices. Coordinate the implementation of ECOs. Requires knowledge of SCSI Bus protocol; a background in project management; and familiarity with Intel platforms and PC operating systems. Knowledge of SCSI host bus adapters and RAID controllers as well as experience with disk, tape or CD-ROM drives are plusses. ***JOB CODE: OEP-3***

Hardware/Systems Engineers

Drive systems engineering activities for our Intel server products. Involves system components including electrical/mechanical, manageability, middleware and drives. Define products and specifications. Work with Taiwan engineering. Handle introduction to manufacturing and work cross-functionally throughout the organization. Resolve all technical issues from product inception to end-of-life. Requires a BSEE and/or MSEE; experience in design of PC systems or system engineering; familiarity with PCI, E/ISA and Intel PC architecture; and knowledge of NT, Netware and SCO UNIX. Strong project management skills are also essential for more senior positions. Positions range from entry-level to high-level principal engineering. ***JOB CODE: HSE-4***

Principal Mechanical Engineer

Lead the mechanical design effort of our new PC server products from conception to completion. Plan and direct mechanical effort of several individuals. Develop models, specification and schedules. Requires a BSME; advanced skills in enclosure developing and performing analysis; 6-9 years' experience in product development; and experience with 2D/3D CAD software (PRO-E/AUTOCAD). Experience with design for manufacturing highly desired. ***JOB CODE: PME-5***

Senior Software/QA & Systems Test Engineers

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Principal Software Engineer - ClientWORKS

You will provide DIGITAL's personal computer value-added manageability software agents including design, coding and testing various ClientWORKS subsystems. To qualify, you must have a BSCS and experience with C++, MPC, Windows 95 and Windows NT instrumentation. Knowledge of DMI and driver implementation a plus. ***JOB CODE: PSE-7***

Hardware Product Management Manager

Ensure that product features/functions meet worldwide customer/marketing requirements. Maintain close contact with Engineering and multiple disciplines to drive requirements and develop schedules. Establish pricing and positioning in support of key announcements and field programs. Responsible for ongoing cost review to drive efforts to improve product margins. Requires 5+ years' PC product management/marketing experience and a technical degree. MBA highly desired. ***JOB CODE: HPM-8***

Product Marketing Manager

Develop and implement worldwide server marketing plans. Assist Geography Marketing organizations in achieving server business goals. Drive specific server marketing, including new product introduction launch support activities. Support announcement activities and act as key spokesperson for the line. Conduct competitive analysis, research and positioning. Requires 5+ years' marketing experience and 3+ years in the PC industry (MBA preferred). Marketing Specialist position requires 1-3 years' PC industry experience. Bachelor's degree a plus. ***JOB CODE: PMM-9***

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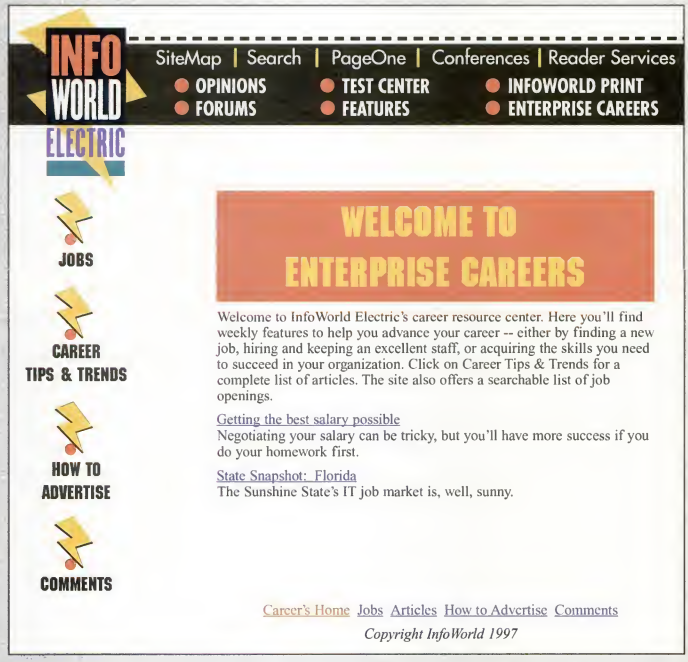

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▸Messaging and groupware server

Exchange fills some big gaps

Continued from page 1

First and foremost among the enhancements, Microsoft has removed the 16GB limit on Exchange's data store. That means each Exchange server can handle more users. And with each server handling more users, larger enterprises can accommodate the same number of users with fewer servers, thus easing administration and saving money on hardware.

BETA

Of course, if you're managing gigabytes of extra data on a server, you're going to want to be able to back it up faster than a gigabyte or two each hour. According to Microsoft officials, Exchange 5.5's data store can be backed up as fast as 15GB per hour, a claim we have not yet been able to test.

Exchange 5.5 also adds enterprise muscle by implementing failover support using Microsoft Cluster Server, formerly code-named Wolfpack, which is part of the Windows NT Server Enterprise Edition 4.0. (See review on page 9.) As a result, if an Exchange server goes down, your users won't be reduced to sitting on their hands waiting for e-mail to come back up. Add this fail-over support to Exchange's existing set of nifty server monitoring tools and its recoverable transaction logs, and we're talking about the kind of reliability that warms an enterprise administrator's heart.

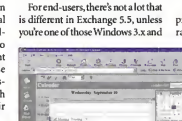
Microsoft has also expanded Exchange's standards support in this release of the product. With IMAP4 support, remote users can keep messages both on the server and on local machines. That's especially valuable for those who want to access mail from different remote machines, and for those who want to download only message headers before deciding which messages to download in their entirety.

Although Exchange 5.5 offers LDAP3 support, it won't really pay off until Windows NT 5.0's Active Directory is available, allowing administrators to easily synchronize Exchange with Active Directory via LDAP. Even in the short run, however, LDAP will allow interaction with third-party products that employ LDAP.

Microsoft has not overlooked security in this release of Exchange. In addition to the security it derives from NT — including single log on to both NT and Exchange — Exchange 5.5 will add integrated Microsoft Key Management Server setup, Secure MIME for sending encrypted messages, and X.509, Version 3, certificate support. In addition, Version 5.5 supports both Remote Procedure Call and Secure Sockets Layer encryption.

Administrators of Lotus Notes shops will be pleased that Microsoft has included a connector for the groupware product, allowing e-mail exchanges and directory synchronization between both.

For end-users, there's not a lot that is different in Exchange 5.5, unless you're one of those Windows 3.x and Macintosh users who was left behind as Exchange moved to using Outlook as a client. Microsoft plans to ship Outlook clients for those operating systems with Exchange 5.5. Unfortunately, these were not available in the beta release I received.



MICROSOFT EXCHANGE SERVER 5.5's *Outlook Web Access has a calendar object, so those using Web browsers remotely can work with their calendars and their messages.*

Remote client users will be relieved to find that when you download an address book under Exchange 5.5, only the changes will be downloaded instead of the whole thing.

And those who are accessing Exchange through the Outlook Web Access will be happy to discover that calendar objects are now supported. I was able to view and edit my calendars, as well as my messages, via a browser.

Finally, Exchange 5.5 holds the promise of more effective collaborative applications, thanks to a new Exchange Chat Service and server-side scripting through the Exchange Scripting Agent. The Chat Service is an Internet Relay Chat (IRC) server that can handle 10,000 users at once, and it will work with IRC or IRC Extended clients, although Exchange does not itself provide any such clients. In similar fashion, the impact of Exchange's server-side scripts will depend upon in-house or other application developers.

There are, of course, still a number of unknowns facing Exchange shops. First, just how powerful and easy-to-use will Exchange's new server-side scripting, forms creation, and application development tools be? Visual InterDev, the scripting tool that Microsoft officials say will ship with Exchange 5.5, was not available in this beta release. I suspect, however, that it's going to take sometime before Exchange is able to compete with Lotus Notes as an application development platform.

Second, to access a truly enterprise directory, Exchange users will have to wait for NT 5.0. Even then, it's uncertain as to whether the new Active Directory, which will ship in NT 5.0, will resolve all the issues that users trying to employ Exchange in large environments have — especially those involved with maintaining multiple object directories. In the meantime, Exchange shops are generally using the Exchange directory as a stand-alone address book.

Although it's too early to tell whether Microsoft will fill all the holes that need to be filled in Exchange, it's clear that Version 5.5 will fill many of the bigger ones that currently exist. With this incremental release, Exchange administrators will be much better prepared for the challenge of managing message flows in larger enterprises. And this greater power is coming without compromising Exchange's easy configuration and management.

Senior writer Patrick Marshall (patrick_marshall@infoworld.com) covers groupware products and has been writing reviews for InfoWorld *for the past nine years.*

THE BOTTOM LINE

Adaptive Server Enterprise 11.5, beta

This relational database management system offers strong scalability and performance, ideal for organizations managing large amounts of data.

Pros: Load balancing and logical partitioning support for optimized performance; improved scalability; support for extended data types; fail-over support in clustered environments.

Cons: Row-level locking not available until early 1998; server-side Java support not available until late 1998.

***Sybase Inc.,** Emeryville, Calif., (800) 879-2273; fax: (510) 922-3210; http://www.sybase.com/adaptiveserver.*

***Price:** Not yet available.*

***Platform:** Windows NT 4.0, Sun Solaris, HP-UX, AIX, Digital Unix.*

***Ship date:** This week.*

▸Database server

Sybase Adaptive Server offers strong enterprise capabilities

By Maggie Biggs

SYBASE'S LATEST version of its relational database management system (RDBMS), now called Adaptive Server Enterprise to avoid confusion with Microsoft's SQL Server, is ideal for enterprise settings that have online transaction processing (OLTP) and data-warehouse requirements. Version 11.5, which includes enhancements such as parallel query and fail-over support, offers some stiff competition to rival RDBMS products from Oracle and Informix.

BETA

The beta release of Adaptive Server Enterprise 11.5 that I tested contained solid implementations of enterprise features such as clustering and partitioning. In addition, Sybase's architectural approach sets Adaptive Server apart from the competition.

Unlike Informix and Oracle, which have plugged extended data types into their existing relational products, Sybase's Adaptive Server uses an additional middleware

▸**RDBMS** *page 118*

THE BOTTOM LINE

Microsoft Exchange Server 5.5, beta

Improved scalability and Internet standards will make Exchange Server 5.5 more suitable for large enterprises and more flexible as an Internet application.

Pros: No limit on message stores; faster backup; fail-over support; IMAP4 and LDAP3 support.

Cons: Separate Exchange directory.

***Microsoft Corp.,** Redmond, Wash.; (800) 426-9400, (425) 882-8080; fax: (425) 936-7329; http://www.microsoft.com.*

***Price:** Not yet available.*

***Platform:** Windows NT 4.0 (Service Pack 3).*

***Ship date:** December.*

THIS WEEK

- Microsoft BackOffice Small Business Server 4.0, beta.....118
- BJC-80 Color Bubble Jet Printer with 15-12 Color Image Scanner Cartridge 120
- HP Kayak XU PC Workstation, beta.....121
- OmniPage Pro 8.0, beta.....121

IDES OF JAVA

In a race that's still too close to call, Borland's JBuilder 1.0, Professional Edition, and Sybase's PowerJ 2.0, Enterprise Edition, jockey for position as the premiere Java development tool. See our review on page 19.

NT ENTERPRISE

Improved scalability and included Transaction, Message Queue, and Clustering servers make Microsoft's Windows NT Server Enterprise Edition 4.0 better suited for large-scale environments. See our review on page 9.

TALK BACK

Questions, comments, kudos? Send a message to the reviews editor at dan_sommer@infoworld.com. Please include "Talk Back" on the subject line.

▸ Server suite

Small Business Server provides integrated solution

By Jeff Symoens

MICROSOFT BackOffice Small Business Server 4.0 is aimed at providing an integrated solution with the core networking services and collaborative applications that many small businesses and branch offices currently have a tough time piecing together at a reasonable price.

BETA

However, the beta version I tested still had a few holes that need to be plugged before it becomes truly a solid business solution.

If you can get past the installation, the lineup of applications included in Small Business Server is fairly compelling.

I was unable to install the product on three of the four servers I tested on. This problem was chiefly due to a beta bug. But it was also because of Microsoft's attempt to make the product easy to install, which has actually had the reverse effect.

In order to provide ease of use, Microsoft has restricted hardware support to devices that Windows NT can autodetect. That means your hardware choices are limited.

The product includes customized versions of Windows NT Server, Internet Information Server, Exchange Server, SQL Server, and Proxy Server. Also, Microsoft has thrown in a pair of new communications-server components, Fax Server and Modem Sharing Server, that allow small-office workgroups pool a group of shared modems for sending faxes from the desktop or connecting to a remote BBS or host. However, the Fax Server component only supports Class 1 fax/modems.

Microsoft has tweaked the feature set and optimized the various components to perform adequately on smaller servers. For example, the Exchange Server application has been tuned so that it uses only 7MB of RAM.

Small Business Server sports an HTML-based management console that is fairly easy to use and should make the administration much simpler. However, in some cases, such as setting up users, it is not clear what you are configuring; for example, access to server shares.

The administration console includes an Internet Setup Wizard, which automates the process of selecting and setting up an account with an ISP or registering a domain name with InterNIC.

These tools could prove fairly useful at sites that don't have a connection to the Internet. However, there was virtually no help in the administration console to let me configure the server for an existing Internet connection, so I had to do it manually.

The licensing of Small Business Server permits as many as 25 concurrent users per server. But the product allows you to create unlimited user accounts — a nice feature that makes it cost-effective.

THE BACKOFFICE *Small Business Server features an HTML-based administration console with easy-to-use but limited management tools for most of the product's components.*

Unfortunately for Microsoft, its attempt to make this product easy to use has somewhat backfired. Unless you meet the hardware compatibility list, BackOffice Small Business Server may not be right for you.

Jeff Symoens is a senior analyst at the InfoWorld Test Center. Send him e-mail at jeff_symoens@infoworld.com.

THE BOTTOM LINE

Microsoft BackOffice Small Business Server 4.0, beta

Although yielding the right combination of applications for small businesses or branch offices, Small Business Server warrants a few improvements before it is ready for adoption.

Pros: Solid file and printer sharing; good messaging communications; Internet access; automated administration wizards included; easy setup and administration.

Cons: Limited hardware compatibility; management console that sacrifices functionality for ease of use.

***Microsoft Corp.,** Redmond, Wash.; (800) 426-9400, (425) 882-8080; fax: (425) 936-7329; http://www.microsoft.com.*

***Price:** Not yet available.*

***Platforms:** Intel Pentium- or Digital Alpha-based machine with 64MB of RAM and 2GB of disk space.*

***Ship date:** This fall.*

RDBMS

Continued from page 117

layer — the Component Integration Layer — to link various data types (such as graphical or spatial) to the application layer. This allows developers to more easily access a wider array of data types and is particularly valuable in distributed environments.

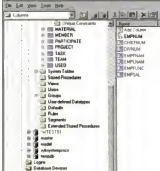
During the first half of 1998, Sybase plans to offer a programming-language engine, called Common Language Processor, that will integrate with the Component Integration Layer and provide component data access to developers using Java, JavaBeans, ActiveX, etc.

Not one but three

The other notable architectural difference is that Sybase has divided its data-management solution into three separate products: Adaptive Server Enterprise, Adaptive Server IQ (formerly Sybase IQ), and Adaptive Server Anywhere (formerly Sybase SQL Anywhere). The Enterprise product is targeted at those who need to manage large data sets, while IQ is geared toward those who need to manage data marts and ad hoc queries. Sybase's Anywhere product is similar in functionality to Oracle's Personal Oracle Lite and offers data-management capabilities for mobile and distributed users.

With three separate products that integrate with each other, administrators can tailor Sybase's data-management solution to be a more close match to their enterprise requirements.

Using the utilities included in Adaptive Server's SQL Central administration tool, I quickly set up a clustered environment that consisted of both single and multiprocessor systems. I was also able to easily configure load balancing across my systems.



ADAPTIVE SERVER ENTERPRISE'S SQL CENTRAL *allows database administrators to manage configuration activities and databases.*

Next, I further optimized performance by using the Logical Process Manager to divide my database processing across multiple systems. Although I did not run formal benchmarks, performance did seem faster after partitioning database processing. In addition, Adaptive Server also lets you partition data. I tried executing some decision-support requests against a large, partitioned data set.

The capability to partition processing and data, combined with Adaptive Server's parallel query functionality during execution, puts it on par with the competition.

Adaptive Server is also strong in the area of data availability, supporting node fail-over in clustered environments, disk mirroring, and fault isolation to the page level. Adaptive Server quickly recovered after I brought down two of the nodes in my cluster. In this area, too, Sybase meets the competition head on.

Like competing products, Adaptive Server supports data types beyond typical relational data. Working with third-party vendors such as Verity, Adaptive Server supports text and multimedia data types, for example.

▸ See our review of Informix Universal Server, April 7, page 107.

Adaptive Server supports extended data types and the logic to process them via a series of components, which are available to developers through the Component Integration Layer. Other database vendors, such as IBM, Oracle, and Informix, use cartridges that plug into their relational engines to accommodate additional data types.

After creating some applications that used Adaptive Server's extended data types, I didn't find the component-based architecture any more or less difficult than writing applications using the competing plug-in type of architecture, but creating distributed applications was a bit simpler. The types of data supported are comparable to competing products, and Sybase will continue to add more data types in the future.

I especially liked Adaptive Server's support for distributed queries. Many large enterprises often use database solutions from multiple vendors. The distributed-query feature lets you select data across a variety of data products.

Stay tuned

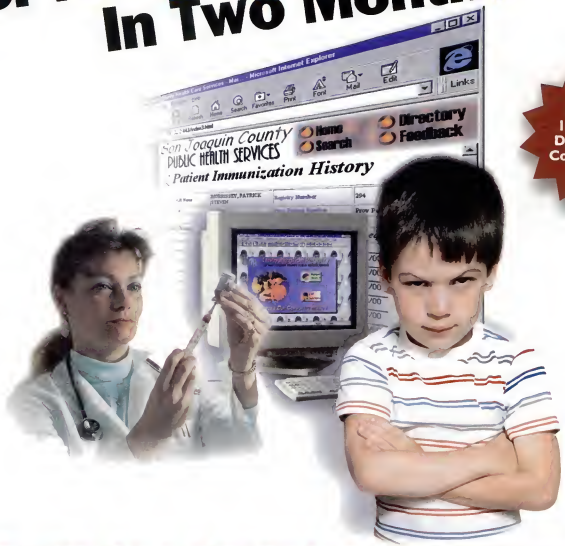
Unfortunately, Adaptive Server won't support row-level locking, which is especially important for increasing response times in applications such as SAP R/3, until early 1998.

During the first half of 1998, Sybase also plans to provide Adaptive Server with complete Java support, both on the client and server sides. Also, Sybase has planned enhancements for OLTP customers, such as advanced indexing.

Adaptive Server's enterprise-level features and component-based architecture make it a worthwhile solution for those who need to manage large data sets and have OLTP and data-warehousing requirements.

Senior analyst Maggie Biggs has designed and deployed various financial-sector database solutions during the past 10 years. She can be reached at maggie_biggs@infoworld.com

San Joaquin County Has Little Patients For N-Tier App Developed In Two Months



Winner 1996 RAD Developers Competition

A Magic Client/Server & Internet Solution

You need speed and power to keep up with kids under five years old. And the same is true when you're tracking their complex immunization records. That's why San Joaquin County Public Health Department chose to develop their new Immunization and Tracking History application in Magic — the world's fastest client and server development system — and, in this case, deploy it on Digital's Alpha NT — one of the fastest business computing platforms. In only two months, SJC's MIS Manager Ken Whiteside delivered a customized Magic application which outperformed both packaged solutions and other tools the county had evaluated. Now doctors and nurses can access the files of all the county's children, stored in an MS-SQL database, from their Windows 95 clients over the Internet.

To give your client/server and Internet development programs a shot in the arm, download the Magic 7 Test Drive (it's FREE!) and give us a call for an on-site demo.

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QUICK BYTE

Portable peripheral prints, scans on the road

PORTABLE COLOR INK-JET PRINTER

BJC-80 Color Bubble Jet Printer with IS-12 Color Image Scanner Cartridge

So you're on the road and you'd like to add a bit of color to the presentation you're giving in the morning. You slip a photo of your client's CEO into your printer. Wait a minute, into your printer? That's right, and that's what Canon Computer Systems hopes you will do, using the IS-12 Color Image Scanner cartridge for its new BJC-80 Color Bubble Jet printer.

Mobile business users will find this 3.1-pound printer, which is slightly smaller than a tissue box, a true boon for last-minute presentation or copying needs. Home office workers and students suffering from limited desk space will also appreciate the many features

THE BJC-80 *portable printer, with IS-12 scanner cartridge, is handy but not terribly speedy.*

loaded onto this tiny printer.

The optional scanner slips into the printer as a replacement for the ink cartridge and, using a bidirectional parallel port and Canon's scanning software, reproduces images as large as legal-size.

But using this portable combo isn't speedy. It took about 3.5 minutes to scan a 4-inch by 6-inch postcard at 360 dpi. That doesn't count the 30-second prescan, which let me select only the postcard and crop unwanted parts of the standard scanning area.

Using the default 180 dpi should speed up the process, but patience paid off even at 360 dpi. The finished images were so impressively sharp and accurately colored that you could include them in any presentation or report.

Printing with the BJC-80 gave similarly impressive results. At 720 dpi by 360 dpi, its print quality stands up to Epson's 720-dpi by 720-dpi models, even on demanding photographs. Text printing on plain paper is also crisp enough for on-the-road business documents, though it doesn't quite measure up to laser quality.

Print speeds are similar to those for desktop ink-jet printers. My seven-page WordPerfect test document finished printing in just about 11 minutes at 360 dpi. One slide from a PowerPoint test presentation, which has heavy color cover-

YOU CAN USE *the pre-scan mode to scan only the area you need, reducing scanning time.*

age, took more than 10 minutes at 720 dpi by 360 dpi.

The BJC-80 includes Windows 3.1 and Windows 95 drivers (drivers for NT 4.0 are due by year's end). It can connect to a PC using its parallel or IRDA infrared port. The built-in sheet feeder holds as many as 30 sheets of paper, making this the only portable printer that you don't have to manually feed.

The main thing I would wish for on this handy, capable printer is a sensor that would warn when ink is running low, and then let you pause printing while you change the ink tanks. Still, this printer is further proof that great things can indeed come in small packages.

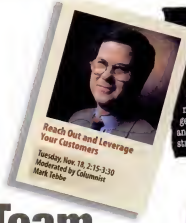
■ *Canon Computer Systems Inc., Costa Mesa, Calif.; (800) 848-4123, fax-back: (800) 526-4345; http://www.ccsi.canon.com; $299 for BJC-80, $99 for IS-12; Windows 3.1 and Windows 95.*

— John Spragens, Review Board

The Total Cost of Ownership (TCO) Challenge

Monday, Nov. 17, 12:30-1:45, Moderated by Test Center Director Charlotte Ziems

With all the talk about NCs, NetPCs, and thin clients, much focus has been put on the costs of deploying technology. This session includes discussions about the competing, sometimes confusing, TCO models and ways to customize them for your specific business needs.



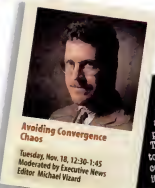
Reach Out and Leverage Your Customers

Tuesday, Nov. 18, 2:15-3:30 Moderated by Columnist Mark Tebbe

The ubiquity of the Web client means companies of all sizes can employ existing databases to develop even more personal relationships with their customers. This session will include techniques and technologies that will allow you to get more from your marketing and sales dollars while creating stronger customer relationships.

Join the InfoWorld Team at Comdex

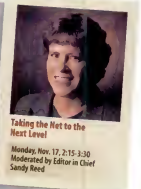
For a special program, "Technology Promises vs. Business Realities"



Avoiding Convergence Chaos

Tuesday, Nov. 18, 12:30-1:45 Moderated by Executive News Editor Michael Vizard

Whether it's videoconferencing, computer-telephony integration, universal messaging types, or audio and video on demand on the Web, the potential for convergence chaos is real. This panel will provide insight on how to stay ahead of the fast-moving convergence trend and how to leverage it into an IT opportunity.



Taking the Net to the Next Level

Monday, Nov. 17, 2:15-3:30 Moderated by Editor in Chief Sandy Reed

It's easy to look into the crystal ball and predict how the Net will affect business in the next millennium. What's hard is figuring out where it's headed in the next business cycle.

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INFO WORLD

▸ Intel-based workstation

Kayak is more like a speedboat with dual Pentium IIs

By Andre Kvitka

THE HP KAYAK XU PC Workstation is the first desktop computer that has excited me in a long time. This first offering in a new generation of Hewlett-Packard workstations is built around Intel's new 440 LX chip set. Primarily designed for industrial and design engineers, software developers, creative designers, and research scientists, the Kayak packs enough power to give Unix boxes some stiff competition.

BETA

The Kayak posted stellar performance running InfoWorld Application Suite for Window NT 4.0. With two 300-MHz Pentium II CPUs under the hood, it's not surprising that the HP workstation outperformed its single Pentium II counterparts. The Kayak was 21 percent faster than the HP Vectra VL 6/266 with a 266-MHz Pentium II CPU and 37 percent faster than the AST Computer Bravo LC-6233 with a 233-MHz Pentium II CPU.

Most impressive, however, was that the Kayak even outpaced Polywell's PolyAlpha 600S, which runs a 600-MHz Digital Alpha chip, by 10 percent. (A review of the Polywell machine will run in a future issue of *InfoWorld.*)

The Kayak has other noteworthy features. The case was redesigned for easy accessibility. For example, the microphone and speaker jacks, volume control, and LAN-traffic indicator light are on the front panel.

HP used a lot of common sense and know-how in laying out the guts of the Kayak. For example, the system components are cooled by three fans, which have been strategically placed for optimum airflow.

Probably one of the more useful features is the environmental sensors, which work in conjunction with HP's Desktop Management Interface implementation called TopTools. Through the intuitive interface, I quickly gathered information and monitored the health of the system components. TopTools even displays pictures of the three spinning fans. When I stuck a pen in a fan to interrupt operation, the corresponding picture of the fan stopped spinning and alerted me that there was a problem.

For NT users who need high-end, Unix-like performance, the Kayak workstation will serve you well.

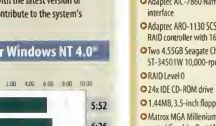
Technology analyst Andre Kvitka (andre_kvitka@infoworld.com) has been a hardware junkie at the InfoWorld Test Center for the past eight years.

HP Kayak XU PC Workstation speeds ahead

A dual 300-MHz Pentium II chip, a 440 LX chip set with the latest version of Accelerated Graphics Port, and a RAID subsystem contribute to the system's impressive performance.

InfoWorld Applications Suite for Windows NT 4.0*

Times in minutes:seconds



*InfoWorld Application Suite for Windows NT 4.0 consists of a number of business-productivity applications performing real-world tasks. All systems were configured with 64MB of RAM, except the Polywell PolyAlpha, which was configured with 128MB of RAM. Performance will vary based on the machine and the components and subsystems used.

IDG InfoWorld

Kayak system configuration

- Two 300-MHz Intel Pentium II CPUs
- 32KB of level 1 cache per CPU
- 512KB of Level 2 cache per CPU
- 64MB of synchronous DRAM (expandable to 512MB)
- Adaptec AIC-7860 Wide Ultra SCSI interface
- Adaptec AIC-7860 Narrow Ultra SCSI interface
- Adaptec ARO-1130 SCSI accelerator, RAID controller with 16MB of cache
- Two 4.55GB Seagate Cheetah 4LP ST-34501W 10,000-rpm SCSI drives
- RAID Level 0
- 24x IDE CD-ROM drive
- 1.44MB, 3.5-inch floppy drive
- Matrox MGA Millennium II with Accelerated Graphics Port (AGP) graphics accelerator with 8MB of RAM (expandable to 16MB)
- Analog Devices AD1845 audio card
- Hewlett-Packard Enchanted 10/100BT PCI Ethernet adapter
- Three PCI, one ISA, one PCI/ISA, one AGP expansion slots
- Four 3.5-inch, three 5.25-inch drive bays

THE BOTTOM LINE

HP Kayak XU PC Workstation, beta

Hewlett-Packard's latest offering is ideal for those who need a powerful workstation but don't have the budget for a Unix box.

Pros: Excellent performance; loaded with state-of-the-art hardware; fine workmanship; great price.

Cons: None significant.

***Hewlett-Packard Co.**, Palo Alto, Calif.; (800) 322-4772; fax: (800) 231-9300; http://www.hp.com.*

***Price:** $7,130*

***Ship date:** October.*

▸ Windows OCR software

OmniPage Pro boasts improved recognition accuracy

By Mike Heck

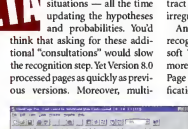
NO OPTICAL character recognition (OCR) package recognizes every word perfectly, but Caere's OmniPage Pro 8.0 produces very impressive results, thanks to its new Predictive Optical Word Recognition Plus (POWR+) engine. Such accuracy, coupled with OmniPage's rapid rate of recognition, high retention of formatting, and improved zoning capabilities, make the program the dominate mainstream OCR application.

BETA

In one of my tests of the beta software, Version 8.0 generated only four errors when processing a page that Version 7.0 processed with 10 errors. I recorded even better results when OmniPage Pro scanned problem documents, such as faxes. In this case, one page that previously generated 25 errors now showed only six misreads. On average, OmniPage Pro 8.0 produced 62 percent fewer errors than Version 7.0.

The program now includes dictionaries for 12 western European languages. (Previously it shipped with only the U.S. dictionary.) When I scanned a page containing English, French, and German text, OmniPage Pro 8.0 properly recognized the international passages with just two errors; Version 7.0 produced 23 faults in the same test.

Think of the revised recognition engine as thousands of complementary "experts" — some authorities in context, others in international languages. POWR+ weighs the opinion of each specialist, assigns a probability, then checks with additional experts based on their success in similar situations — all the time updating the hypotheses and probabilities. You'd think that asking for these additional "consultations" would slow the recognition step. Yet Version 8.0 processed pages as quickly as previous versions. Moreover, multithreading let me simultaneously scan, zone, recognize, and edit multipage documents, allowing me to work very efficiently.



NEW ZONING TOOLS *let you draw complex, irregular recognition areas.*

OmniPage Pro 8.0 improves upon its predecessor's capability to maintain the formatting of original documents. It more accurately recognized font point size, font style, lists, and tables. Also, HTML Level 3 output, which retains type style and converts graphics, let me use files on a simple intranet site without further editing.

As for zoning, OmniPage Pro 8.0's zoning feature, which identifies parts of a page as text or graphics, exhibited many improvements.

After the software automatically sensed different areas on a page, I refined the regions by moving zones with the mouse. In addition, commands from the expanded Zone toolbar let me accurately merge and split zones, add and subtract areas from zones, and draw irregular sections.

Another new option checks recognition results within Microsoft Word, which I found to be more convenient than using OmniPage Pro 8.0's built-in editor. Verification works much the same as Word's spelling checker — with the added capability to compare suspect words to the original bitmap image.

When the software was not sure of a word, it made more logical suggestions than the previous versions had. And, OmniPage Pro and Word shared the same custom dictionary, so I did not have to maintain two separate lists.

With its improved accuracy, OmniPage Pro 8.0 should appeal to high-volume OCR users. Its low cost also makes it a practical solution for anyone with a scanner who needs to turn paper documents into editable text.

Mike Heck, a contributing editor, is manager of electronic promotions for Unisys Corp., in Blue Bell, Pa. He can be reached at Michael Heck@unn.unisys.com.

THE BOTTOM LINE

OmniPage Pro 8.0, beta

This best-selling business optical character recognition package proves significantly more accurate than its predecessor. In addition, the program is now easier to use and works faster.

Pros: Precision-enhancing features include use of linguistic information, automatic straightening of images skewed as much as 10 degrees, and recognition of inverted text; multithreading accelerates throughput; better integration with Microsoft Word; improved word and page formatting; new zoning capabilities.

Cons: None significant.

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FROM THE ETHER · BOB METCALFE

FCC chairman Hundt shares our fears of telopoly abuses of the Internet

LAST WEEK, standing in his office atop the Federal Communications Commission building on M Street in Washington, I thanked Reed Hundt for serving four years as chairman of the FCC. I took the liberty of thanking him on your behalf.

In two weeks, Congress is scheduled to begin confirmation hearings on four out of five new FCC commissioners. Why anyone even remotely qualified would take Hundt's job, I'll never know. Can't be the money. Not even Hundt's photo of Clint Eastwood begging him for a radio-station license seems worth it.

Being no Clint Eastwood, I was surprised they let me in to the FCC after savaging Hundt here in May. I'd gone after Hundt for playing Robin Hood to schools and libraries with our telephone bills and, worse, throwing Internet service providers to the regulatory wolves (see "FCC's Hundt takes a step forward, two backward with subsidies and taxes," May 19, page 133). Nameless members of Hundt's staff said my attack on the chairman was nothing compared to the usual, and Hundt agrees with me (or vice versa) on most everything else.

Hundt is not leaving his high office gracefully. He's recently been sticking his thumb in the eyes of the telephone monopolies. See http://www.fcc.gov/Speeches/Hundt and especially the chairman's recent remarks to the IEEE — "From Here to Ubiquity."

Great stuff.

I worried here last month about the so-called Internet Protection Act of 1997 (IPA97) now before Congress (see "Don't let the name fool you: Beware the Internet Protection Act of 1997," Aug. 25, page 115). Hundt is flat out against IPA97, and now instead of being worried, I'm scared.

Hundt's view is that IPA97 is part of a determined effort by telopoly interests to move jurisdiction for the Internet out of the FCC and down to the state level, where telopolies and their public utilities commissions hold sway. But, Hundt asks, is the Internet mainly a network for local or intrastate communication, or is it more at the interstate or even international level?

Hundt is sympathetic to those, including me, who urge the debloating of Washington. But, throwing the Internet in pieces to telopolies and their local authorities is not a place the devolution battle should go. If the Internet is to be regulated at all, we agree, it should be by the FCC, and in large part to prevent burdensome regulation and taxation by local authorities.

Hundt's view on the Telecommunications Act of 1996 is more surprising. He's angry with the legal profession, the courts, and Congress for allowing telopoly lawyers to thwart competition by halting the Act's implementation. (So it's no wonder the leading candidate to take over AT&T is a regulatory lawyer.)

In a recent *Wall Street Journal* article, Harvard Law School's Laurence Tribe attacked Hundt and defended telopoly litigation to halt implementation of the Telecommunications Act of 1996. Tribe wrapped himself up in the Constitution — a sure sign that Hundt is right.

Tribe represents the worst of the telopolies — SBC Communications — and he likes trying his cases in the newspapers. Tribe is arguing that it's unconstitutional to name telopolies in the Act. I'd say the U.S. Department of Justice should return the favor by naming them in an antitrust countersuit.

I asked the chairman how he felt about my urging of a class-action antitrust lawsuit against the United States Telephone Association (USTA). Recall, these are the local telopolies, who in obvious violation of antitrust law, do not compete with one another and who are unfairly leveraging their $200-billion circuit-switching monopolies into today's emerging $1.5-billion packet-switching markets (see "Illegal business practices, spreading lies just business as usual for Baby Bells," Aug. 11, page 111).

It's a good sign that the chairman did not pat me on the head and tell me to run along.

Instead, Hundt said such suits would be stronger if launched by governments — how about the United States vs. USTA? He reminded me how state attorneys general broke open tobacco litigation. When I asked whether the FCC would be taking any antitrust action against the telopolies, Hundt smiled and said I was asking the wrong guy.

Who is the right guy? Joel Klein, head of the Antitrust Division of the Justice Department (http://www.usdoj.gov/atr/atr.htm). If anybody out there knows Klein, please tell him he can always come back to Microsoft later, after breaking the telopolistic USTA.

I invited Hundt to speak with computer executives gathering at Agenda 98, the industry conference I'm co-producing in its 11th year with Stewart Alsop next month in Arizona (http://www.agenda/web.com).

I'll get back to you with what Hundt says to, and gets told by, that audience.

Bob Metcalfe invented Ethernet in 1973 and founded 3Com in 1979, and today he specializes in Internet technologies and issues. Send a message via e-mail to bob_metcalfe@infoworld.com.

NOTES FROM THE FIELD BY ROBERT X. CRINGELY

Close examination of the news reveals much on the not-so-bright side

THINGS ARE GOING downhill fast. Pammy seems to have vanished, leaving only a vague voice-mail message about a trip to Gstaad, and the rest of my in-box isn't too cheerful, either. As my mother used to say, it's an ill wind that blows nobody any good.

Big Brother Jobs

Things at Apple seem to have taken on a slightly sinister edge following the return of Steve Jobs. Apple stalwarts who want to share their thoughts on the company's future claim that both their e-mail and voice-mail messages are being monitored for leaks. Seems the only way Apple types can drop a dime from their office is by using a cell phone.

Default finding

One unhappy Compaq user reported problems with a brand-new Presario 4528. It seems the system dies until rebooted using the F5 key to reload the system defaults into the CMOS/BIOS. Compaq support reportedly confirmed the problem but said the work-around does not always work. The company hopes to post a patch on its Web site soon.

Perhaps it's time to change hardware suppliers. It seems Hewlett-Packard may be getting serious in its conversion to the NT way of life.

One mole says that HP employees at the workstation lab in Colorado working on the Unix 9000/700 series have been told there will be no more beyond the planned models as HP quietly backs both horses. Now there's a company that doesn't let technical religion get in the way of customer requirements.

Don't quit your day job

Although Informix Software's highly regarded chief technology officer, Michael Stonebraker, plans to form a middleware company, this does not mean he is leaving Informix, a company representative last week insisted.

Stonebraker came over to now-troubled Informix via the Illustra Information Technologies acquisition in 1996. Stonebraker in July, however, spoke of repositioning the Informix Universal Server object-relational database as a middleware platform.

Push off?

It was a hard week for everyone, but who could have anticipated the enormous upswell of grief at this week's disaster at Marimba?

It seems only six months ago that this cheerful, laughing Princess of Push had won the hearts of the entire venture-capital community, bringing tears to the eyes of grizzled industry observers everywhere. Now Marimba's tragic high-speed collision in the dark tunnel of market forces appears headed for tragedy.

I am sorry to announce that, despite the company's last minute affair with Tivoli, Marimba has parted, irrevocably, with its PR agency, the dashing Niehaus Ryan Group.

The fairy-tale marriage is over, and we will all feel its loss. Our thoughts are with Kim Polese tonight.

It would be great to hear from you at a time like this. And keep those cards and letters coming. Call (650) 312-0555; fax (650) 286-2775; or send an e-mail message to cringe@infoworld.com.

ILLUSTRATIONS BY JOE SHERABON; COPY AND MARIMBA SAM

DOWN TO THE WIRE · NICHOLAS PETRELEY

I hear what you're saying, and hey, that's crazy! Or am I just projecting?

LIKE MOST PEOPLE of my generation, I attended group therapy back in my first years of college. Most of us were struggling with our typical identity crises, but one unusual fellow had been hit with a computer part and thought the computer was controlling his thoughts.

The rest of us in the group politely asked what kind of computer it was, what the computer was telling him to do, and why he felt the accident would cause such a thing. Finally, the shrink blurted out, "Why won't anyone tell this guy 'Hey, that's crazy! A computer can't control your thoughts!'" He was an unusual shrink.

I've been reliving that experience since late July. That's when Microsoft invited editors to Redmond, Wash., to hear about its latest plans. In particular, Microsoft said it plans to make its applications self-repairing. (See "Windows upgrade dilemma; Office politics remain," July 28, page 1.) The next Windows version will automatically find and replace missing system files. (System files can be overwritten or removed when you install new software or uninstall old software.)

As I sifted through the news, analyses, and columns reporting this expected feature, I grew impatient waiting for someone to say, "Hey, that's crazy!" If anyone did, I didn't see it.

It's a mad, mad world

Now I read that Microsoft has released its Agent software. It lets you create animated personalities for your applications like the cartoon paper clip that comes with Office 97.

I'm still compiling the reader suggestions that I solicited in last week's column regarding the ideal user interface. But it already seems clear to me that people are interested in making processes more intuitive, not adding a Drippy the Clown character to lead you to an option buried three menus and two dialog boxes deep.

A group with a grip

This isn't really about Microsoft. In defense of Microsoft, I have no reason to believe it will totally neglect ease-of-use issues just because it wants people to use animated agents. I recently complained to Jim Allchin, Microsoft's senior vice president of the personal and business systems group, about how you have to reboot Windows NT every time you change something more serious than a file name.

Allchin assured me that future versions of Windows NT will be hard-core about preventing installation software from making changes in system directories that require a reboot. This improvement could also reduce the need for self-repairing applications.

No, this is really about us. I'm concerned that we consumers and observers of the industry have become so conditioned to be impressed by flashy new gadgets and features that we no longer see or care that they leave underlying problems unsolved.

If so, this appears to be a characteristic unique to the high-tech industry and its consumers. After all, imagine one of these features in the automobile market.

Let's say you buy a Jaloposoft car and discover it has a design flaw. Whenever you make a hard right or left turn, a sharp protrusion under the front fender digs into the tire and causes a flat.

Jaloposoft then announces that the problem will be addressed in the '98 models. These new models will incorporate a self-repairing robot that sits on the back hood. If the blowout that occurs during a hard turn doesn't cause a fatal crash, the robot will jump off and change the tire.

Would we not laugh Jaloposoft off the planet? Tell me, because if these "solutions" to serious design issues are acceptable to you, then one of us — the vendor, you, or I — needs to get back into group therapy.

Tell me it ain't me and it ain't you. Send me e-mail with your impression of self-repairing as a solution to unprotected system files, animated agents as a solution to feature-bloated software, or any of the other zany solutions companies create to fix a design problem.

If that's what you really want, then I'll consider myself the loony and admit defeat. If it isn't, I'll do my best to make sure your responses get the attention of the vendors in question. Perhaps together we can help them get a grip on reality.

A former consultant and programmer, Nicholas Petreley is now editor in chief at NC World *(http://www.ncworldmag.com). Reach him at nicholas_petreley@infoworld.com or visit his forum on* InfoWorld Electric *(http://www.infoworld.com).*

BETWEEN THE LINES · MARK TEBBE

Don't cry for the NetPC's demise — manageable PCs are still on their way

DOES IBM'S DECISION to stop making and selling NetPCs mean that the Microsoft-Intel initiative is a failure? Will Intel be forced to admit defeat as other PC vendors drop their plans for NetPCs? Is the traditional PC so firmly entrenched in customers' expectations that no improvements in manageability will ever be made? Nope, nope, and (thankfully) nope.

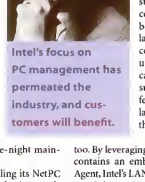
Even if only a handful of NetPCs are sold, the whole NetPC initiative is a success: It slowed the NC parade and permeated traditional PC products with integrated system management. And it's a rip-roaring success. Intel's management crusade is permeating product lines, and customers will win.

Look closely at IBM's announcement. It didn't say customers said manageability was a goofy notion or that Big Blue was choosing sides in the NC vs. NetPC argument. It simply said customers did not want or need some of the compromises Microsoft and Intel made in the NetPC specification.

What customers do want and need is a PC that has many of the system-management features in the NetPC initiative, namely Intel's Managed PC Initiative. They want the ability to restrict a computer to particular functions (and also the ability to later change their minds without changing the box). They want the ability to have a central administrator manage a computer through the LAN or even through the Internet. They want the Wake-on-LAN feature to allow late-night maintenance and support.

This is why IBM, while killing its NetPC product, made it clear that it also is extending its system-management capability across the entire PC line. Big Blue is even preparing to announce a sealed version of a PC, but it won't follow the NetPC specification. It simply is a normal PC with a very secure cover.

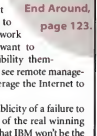
And IBM isn't the only vendor extending system management across its product line. Compaq, Dell, Digital Equipment, and Hewlett-Packard are still promising to produce NetPCs, but they also are injecting system management into many of their new products — a huge win for companies wanting to tackle their total-cost-of-ownership challenge.



Intel's focus on PC management has permeated the industry, and customers will benefit.

But it's a bigger win for Intel. The company's Wired for Management (WFM) baseline specification will become the new industry standard. Based on its OEM commitments, WFM should be in most computers sold late this year. For existing computers, we also will see updated network interface cards that can be extended to support these management features. Intel announced last week a 100Mbps card for this function.

Intel wins in another way, too. By leveraging the WFM baseline, which contains an embedded LANDesk System Agent, Intel's LANDesk Configuration Manager is becoming a core component to corporations. This management tool was initially referenced only in NetPC approaches, but it is increasingly being used in everyday desktop PCs. When companies see the economic benefits provided by true system management, they will want such features. However, it wouldn't be surprising to me that corporate network managers might not want to shoulder this responsibility themselves. So I believe we'll see remote management facilities that leverage the Internet to manage remote PCs.



Looking for Cringely? Take one step back to End Around, page 123.

Maybe it takes the publicity of a failure to truly see the brilliance of the real winning strategy. I'm confident that IBM won't be the last vendor announcing cancellation of its NetPC offerings. But with Intel injecting our new computers with system management tools, we may be able to actually reduce the cost of managing our systems yet.

Will the management features in a PC cure your woes, or do you need or want a NetPC? Or is a true network computer the only answer? Send me your thoughts via e-mail.

Mark Tebbe (mtebbe@lante.com) is president of Lante Corp., a consulting and integration company whose clients worldwide include several high-tech companies.

2 A TEACHER DISCOVERED *that Christian would respond to images from his life. She put visual cues to the story of his new puppy on a special keyboard.*

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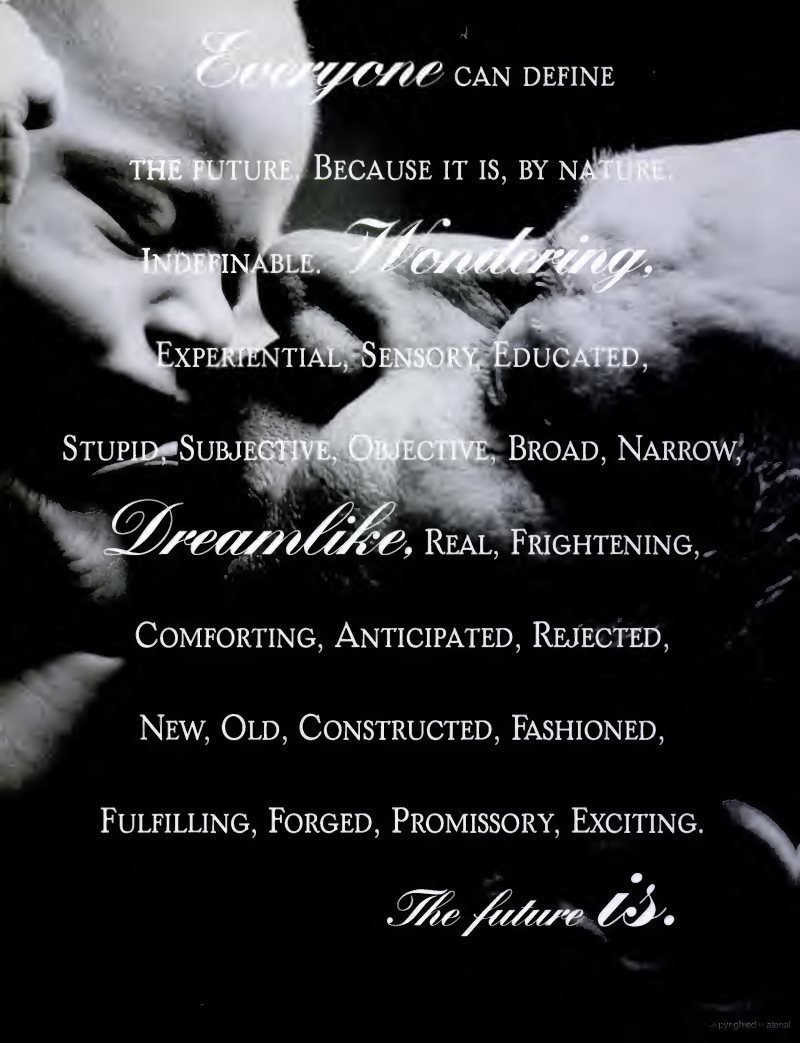

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